

# BUTANE-PROPANE Technology

RECOGNIZED AUTHORITY OF THE  
UNIFIED PETROLEUM GAS INDUSTRY

## News



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There is a constantly increasing demand  
for Anchorgas, Butane-Propane. L.P.G.  
for big-business and it's growing even  
faster. It's an essential part of the Ameri-  
can way of life. Anchorgas fills a real need  
in the industrial and home life today.

AUGUST, 1945



**PRECISION  
MANUFACTURED**

**LIGHT  
WEIGHT**

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STRENGTH**

**UNIFORM  
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# L.P. GAS CYLINDERS

Hackney L-P Gas Cylinders have only a single body weld... X-ray controlled to assure uniformity and maximum strength. The two shells are entirely seamless... and are pressed and drawn to shape by the Hackney Process. This advanced manufacturing method assures uniform sidewall thickness and the elimination of defective material. Correct physical properties of both steel

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Because of the advantages afforded by Pressed Steel Tank Company design and construction, L-P Gas Producers, Distributors and Dealers prefer Hackney Cylinders for the storage and transportation of their products. Write for full details today.

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*Manufacturers of Hackney Products*

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**CONTAINERS FOR GASES, LIQUIDS AND SOLIDS**

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**NO OTHER CAN MATCH IT!**

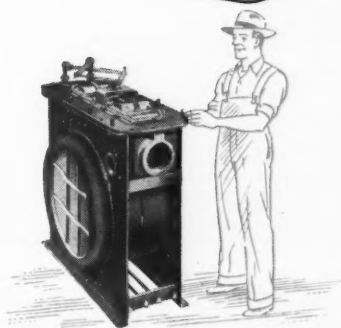
*Design...  
IN Construction  
Performance*

**EMCO**  
*Large Capacity*  
**PRESSED STEEL  
METERS**

It takes big meters for big jobs. But size alone doesn't tell the whole story. Strength, installation ease, maintenance accessibility, and the floor area required per setting are important factors in selecting a meter for any large volume installation.

EMCO Pressed Steel Meters take top rank on every score. While giants in capacity, they require less floor space per cubic foot than any other meter. Their exclusive reinforced pressed steel construction makes them extremely rugged, yet light in weight. Their compact design makes manifolding possible without crowding, thereby providing full accessibility for routine reading and examination.

Distribution engineers, when encountering loads varying from zero to 10,000 cubic feet per hour, have learned to rely on an EMCO Pressed Steel Meter to handle the job with complete satisfaction.



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Removing top cover exposes tangent, tangent arm, and adjustments. Diaphragm retained by clamping band and screw. Large diaphragm area. Heavy oversize parts to take all driving strains without stress or deflection. Pressed steel case built around cast iron valve plate. All moving parts carried and aligned by rigid valve plate. Extremely compact case; requires very small floor space. Construction reduces leakage risks; eliminates hazards.

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Atlanta Houston **EMCO NORDSTROM VALVE CO.** Los Angeles Boston  
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Kansas City San Francisco New York

National Meter Division, Brooklyn, N. Y.

*EMCO Specialized* **EQUIPMENT for GAS MEASUREMENT and CONTROL**



# BUTANE-PROPANE *News*

Reg. U. S. Pat. Off.



## Contents for August, 1945

Letters . . . . .	11
Comment . . . . .	15
Mainly Beyond the Mains . . . . . <i>By Elliott Taylor</i>	17
How to Gage Liquid Levels with Accuracy and Safety . . . . . <i>By Leonard I. Hall</i>	21
May Now Re-Install Equipment Used Prior to Feb. 15, 1945 . . . . .	28
Carburetor Demands Keep Repairmen on Jump in Oil Fields District . . . . . <i>By O. D. Hall</i>	29
Natural Gasoline Plants Benefit by Easing of Orders . . . . .	31
Pump Problems: Right and Wrong Installations . . . . . <i>By R. Stanley Smith</i>	33
Handy Device Aids Installation . . . . .	39
Quiz: Equipment Selection, Installation . . . . .	41
Gas Ranges Flown to Coast . . . . .	44
Safety: Text Exam on NBFU No. 58, Part 2 <i>By F. F. Campbell</i>	46
Commercial and Industrial Applications—Chapter 13: Converting Shoe Factory Steamers . . . . . <i>By C. C. Turner</i>	52
Current Reading . . . . .	76
New Products . . . . .	81
The Trade . . . . .	86
Power: 22 Butane Trucks Haul Fuel 8 Years . . . . . <i>By Paul Lady</i>	97
"Flame Weeding" Offers Market . . . . .	106
Classified . . . . .	126
Advertisers . . . . .	128

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CASES:



## "LESS GUESS WORK IN COOKING"

with the  
**HARPER BURNER SYSTEM**  
says this user

No woman likes to spend most of her time hovering over the range while preparing a meal... and then not be sure of the results. You can be sure with the Harper Burner System, an advantage that appeals to Mrs. R. A. Heist Jr., 558 S. Clay St., Kirkwood, Mo., who says:

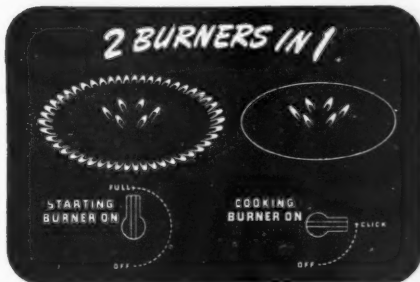
*There is less guess-work in cooking when you have the Harper Burner System. The accurate control of the small burner flame, and the fact that it can be turned lower than ordinary burners, gives this assurance"*

### "ABSENT COOKING" A REALITY

The Harper Burner System permits accurate low heat control... eliminates guess-work. No other top burner makes it so easy to gauge the exact amount of heat desired for every type of cooking.

Many women estimate they save 8½ hours unnecessary pot watching each week. "Absent cooking" can be done without worry about food boiling over or boiling dry. Just this one advantage explains why the first question asked by thousands of women when buying a new range is—"Does it have Harper Burners?"

**NOTE:** A new and improved Harper Burner System is now available for range manufacturers who are producing deluxe ranges. Harper-Wyman Company, 8562 Vincennes Avenue, Chicago 20, Ill.



*The Harper Burner System operates on the unique principle of "2 burners in 1"... a STARTING BURNER plus a small, economical COOKING BURNER, both controlled by the same handle. It is subject to finer gradations of low heats—greater control and economy—than any other top burner made.*

## HARPER BURNER SYSTEM

"HOLDS THE LINES  
FOR GAS"

AUGUST — 1945

# NOW

## IS THE TIME TO MAKE YOUR COLD WEATHER CALLS!



It's hot in August.  
But August is the  
time to make your  
cold weather calls!

It will be Winter before you know  
it! Winter, with all its problems  
... pressure failures with almost  
full fuel tanks, needless service

calls. These and other problems are readily handled by the Algas  
Vaporator.

Fully automatic, entirely self-contained. No water is used in  
heating unit, no outside power is required. May be installed with  
either above ground or underground Butane or Propane storage  
tanks. Users can be assured of continuous gas service even at low  
temperatures and under all weather conditions.



THINK AMERICAN



# LETTERS

- Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

Gentlemen:

We have a plant designed for butane-air gas and are now required to run entirely on propane. I am unable to find anything relative to the comparative amount of heat required for vaporization.

It would seem to me that we could operate in the summer without any heat and perhaps to some extent during the colder weather.

Will you please advise?

L. E. D.

New Jersey

It requires 160 Btu.'s to vaporize 1 pound of n-butane and 180 Btu.'s to vaporize 1 pound of propane.

Due to the fact that propane vaporizes at much lower temperatures, it is entirely possible that you can utilize the heat from the atmosphere to vaporize during the summer. This will depend upon your load and the size of your storage tanks.—Ed.

Gentlemen:

In your June issue of "BUTANE-PROPANE News," Page 9, you have a letter from "W.R.," asking the correct charge per cubic feet of gas registered by a cubic foot meter. In your answer you state that the correct charge would be .365 cents per cu. ft., or 36.5 cents per 100 cu. ft.

We would very much like to know how you arrive at this answer.

M.M.T.

Louisiana

Thanks for calling this mathematical error to our attention. We will repeat the entire

statement, with the corrected figures, so that our readers may be properly informed:

"On Page 22, Handbook Butane-Propane Gases, you will find that propane produces 36.45 cu. ft. per gallon and normal butane 31.79 cu. ft. per gallon.

"We will assume you are receiving a mixture of 40% propane and 60% butane.

"To determine the cubic feet from the mixture, perform the following arithmetic:

$$36.45 \times .40 = 14.580$$

$$31.79 \times .60 = 19.074$$

$$33.654$$

"Divide 14 cents by 33.654 = .417 cents per cu. ft., or, 41.7 cents per hundred cu. ft."—Ed.

Gentlemen:

I should like to know if in the U. S. or in any other country pipes from plastic materials, saran, bituminous plastics, etc., have been used for installations for butane and propane gases as also for natural and coal gases and if such pipes have proved successful; if there is any effect on the plastic material, corrosion, etc.

Is it known to you if pipes from asbestos-cement have been used for long distance transmission lines, distribution lines and also for house installations for butane or propane gases? I am very interested to know if such pipes from this material can be used as a substitute for iron and copper pipes and if asbestos-cement is not corroded by the different gases, especially by butane or by propane, and if there exists some experimental knowledge.

Is there some literature available concerning cold storage rooms, etc., in connection with large butane and propane plants using the evaporation cooling effect? I am especially interested to know something about the practical experience and data and de-

tails concerning the construction of the pressure regulators.

Is there any literature available concerning the calculation of butane and propane gas mains, piping systems in large towns?

J. B. U.

#### Palestine

A few installations have been made using plastic instead of copper tubing for pigtailed from tanks to regulators. They have not been used long enough to have any experience records. Some have services made of plastic and have been installed by the natural gas companies, but the records are not complete enough at this time for any conclusions to be reached.

Asbestos pipe material has been used extensively during the war for water distribution but not for gas. One of the reasons for its not being used is the need of making up joints.

Most of the larger refrigeration projects have been built in the oil refineries to special process design and we know of no literature that would describe these installations.

The "Handbook Butane-Propane Gases," on page 320, gives some information on pressure drop in distribution systems. The "Gas Engineers' Handbook," prepared by the Pacific Coast Gas Association and published by McGraw-Hill Book Co., Inc., New York (1934), gives information on natural gas distribution systems which can be used for LP-Gas installations by correcting for gravity in the pressure drop formulas.—Ed.

Gentlemen:

As a newcomer to the liquefied petroleum gas industry, I'm finding the cover-to-cover contents of BUTANE-PROPANE *News* extremely interesting and educational, including the advertisements.

For better public understanding, I would suggest that advertisers in national magazines use less abbreviation and more explanation. Or is this only the reaction of a novice?

(Miss) F. H. Rossiter

Oakland, Calif.

It is always interesting to get the reactions of newcomers to an industry as they are quick

to pick out defects and limitations which other industry members have come to take for granted.

Your criticism of abbreviations used by advertisers in national publications is very constructive.—Ed.

Gentlemen:

The public school here has been using gas machine gas for cooking. The gas machine is worn out and they want to put in bottled propane gas. The following is a list of the equipment they would like to convert to propane.

Two ranges with four top burners, two oven burners and a pilot burner on each. Pilot burner is in oven. Ranges are all manually controlled. They also have 14 one-burner hot plates.

We would like to know how much of any of this equipment could be converted to bottled propane.

H. J. B.

Iowa

All of the equipment which you list can be converted to use propane. It will be necessary to install new orifices and it may be necessary to raise the top burners for efficient operation.—Ed.

Gentlemen:

I will appreciate any information you may have in using butane gas for brooding chicks, housing, stoves, equipment, etc.

There is no gas brooding of chicks in this country, but there are quite a few homes and it seems to me it should be used for brooding as well as any kind of fuel, and possibly better than most.

K. C. H.

Louisiana

This subject has been very thoroughly covered recently in our February-to-May issue, written by C. C. Turner as part of his series on commercial and industrial applications of B-P Gas.—Ed.

# COMMENT

NO more important information has ever been given our industry than the articles in the June and July issues of BUTANE-PROPANE News on pump problems, by R. Stanley Smith.

What difficulties have you encountered in making liquid transfers? Tell us about them and Mr. Smith will cover such points in a future article for the benefit of other dealers. Or, ask questions about any pumping operation that is not clear to you. Your name will not be used.

This month good and bad installations are described.

*Now approaches the period of "relaxation" for B-P Gas dealers—but not a rest period. Out of Washington comes a gradual easing of the restrictions which have bound the industry for the war years.*

*Just as rapidly as conditions will permit, limitation orders will be cancelled and the way opened for old-time competition, but on a new, high speed basis.*

You can't limit your view of the B-P Gas industry to the domestic field and not lose much of your legitimate heritage as purveyors of fuel beyond the mains.

There are bigger loads to build and easier sales to make in the commercial and industrial fields than most dealers seem to realize. There were 40 billion meals served in American restaurants in 1943, exclusive of service men. That took equipment and fuel.

Survey your field. See if you are overlooking profitable business. J. W. McNair's article in this issue on "Peeping Into the Future of Com-

mercial Cooking" will fortify you with sound basic information.

Business men have become fire insurance conscious (there's 90 billion dollars' worth outstanding), but they seem never to learn to be fire conscious. Carelessness and lack of respect for the property of others are basic reasons.

Last month comment was made that there is some tendency in Southern states toward the use of propane so that dealers would not again be caught in a "butane pinch" and so that vaporization in occasional cold spells would be lessened.

Kenneth Koach, Green's Fuel's general manager, writes that, in his opinion, "the propaganda on this subject, which has been prevalent for some time, has, in itself, led some butane operators to consider changing over to bottled gas," and adds, "I seriously question that this (the trend), is true and I do not feel there will be any need for it in the future . . . the supply problem after the war should not be a factor with either butane or propane."

Mr. Koach feels that a large section of the industry in the South has been unnecessarily disturbed by the reports.

That there will be ample supplies of all liquefied petroleum gases after the war now seems certain and dealers by no means should be stampeded into any costly changes but when new storage facilities are considered, they may well be high pressure vessels as good insurance against any future uncertainties that might arise.

By Ed.





# 7 leading magazines are carrying the story of the Postwar *Magic Chef*



**THE COMBINED POWER** of these magazines is working in your behalf and selling L. P. gas service. They are telling millions of prospects the story of the Postwar Magic Chef and that they will be available for use with bottled and tank gases.

You can help yourself to your share of the business resulting from this national advertising by tying in with the Magic Chef Kitchen program in your own store. The May issue of Magic Chef Magazine announced a new and complete program of kitchen promotion. If you didn't get your copy, be sure and write at once to your nearest American Stove office. Available in this program: Broadside, complete newspaper ads, and four truly beautiful six-color kitchen enlargements, size 20" x 20½" for display purpose.

Be sure to use all this material now, so you can cash in on American Stove Company's great national advertising program.

## AMERICAN STOVE COMPANY

4901 Perkins Avenue • Cleveland, Ohio

New York • Atlanta • Philadelphia • Chicago  
Cleveland • St. Louis • Los Angeles



# Magic Chef

**RED WHEEL GAS RANGES  
AND HEAVY DUTY GAS COOKING EQUIPMENT**



Awarded to  
Quick Meal Stove Co.  
and Geo. M. Clark & Co.  
Divisions of American  
Stove Co.

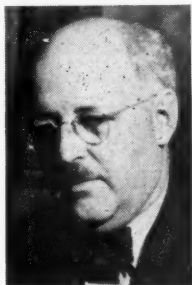
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# MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

## They Still Know How

Some of the postwar prophets seem to be breathing a little hard right now in their anxiety over the fact that gas appliance manufacturers aren't ready to announce any new world-shaking developments in the domestic cooking appliance field. They point out that



ELLIOTT TAYLOR

even the beer advertisements are telling the housewife how she will be able to roast a chine of beef electrically in 30 seconds and they wonder whether, under these conditions of emancipation, they are going to be able to keep her chained in the kitchen for upwards of half an hour while she prepares a simple little four- or five-course repast for her lord and master.

The electrical industry, which in general spearheaded the dream-world of new appliances for tomorrow, suddenly finds itself not a little embarrassed by the fact that a good many of the potential buyers of postwar merchandise took this joking seriously.

And now they are very much afraid that these same prospects will just mill around in droves looking for the visionary trappings to appear on the shelves, the while they pass up the old fashioned appliances that are still able to do about as good a job as they did before—and which will be all there will be to show for a long time to come.

If we were making personal plans for postwar appliance selling we would quietly set down a few fundamentals that helped sell pre-war appliances, and we would count heavily on them carrying us through until something better comes along.

Surveys have been made from Maine to Memphis and all of them have finally turned up to prove that the outfit undertaking the survey was right in the first place. So, a gas company whose sales manager favors automatic oven ignition, generally finds out to his surprise and delight that 97.2% of his customers agree with him. And an ad writer who wants to check how his series is being received totals the returns and discovers that his slant is far and away the best thing that has ever hit the consumer right smack in his consciousness.

As a matter of fact we are ex-

tremely skeptical about some of the consumer preference data that are being showered down on the heads of hapless manufacturers by various agencies from publishers to public utilities, all with an axe to grind. The "Homeopathic Home" survey may reveal that all of its readers want a cooking machine (that's the latest nifty in nomenclature that has been thrown into the discussions) complete with every out-of-this-world gadget that a feverish market surveyor can dream of. Maybe Mrs. Tomorrow does express a preference for oven lights and automatic oven lighting, for deep wells and shallow, for waist-high broilers and knee-high ovens in response to a bright leading question from a young sorority sister who knows how to get into the kitchen without being crude about it.

But the manufacturer knows, too, that although she may want clock control with a desperate longing that only a woman can understand, Mrs. T. may still not want it \$37.50 worth, if it happens to cost that much to install the device on one low or medium priced model. Oven lights may appeal to the postwar fancy of the dreamer, but there are thousands of women who would light a candle and crawl up to the oven on all fours if an oven light were to cost them an extra \$5 bill when they purchased the range.

With all due respect to the awareness of both the gas utili-

ties and the liquefied gas dealers, we still put our money on the gas appliance manufacturer as the best predictor of trends, and the best provider of merchandise to be in line with those trends when and as they are manifest in new consumer buying habits.

Gas cooking appliances have appealed to the consuming public in the past on pretty basic and comparatively simple grounds. They have been efficient, they have been attractive, they have been long-lived and rugged and they have been made for a fuel that was, and still is, speedy, flexible and uniform in performance.

We have no doubt that many interesting and attractive innovations will gradually appear, some to be discarded and others to find their way into standard lines of equipment. But there is at present no cause for apprehension or concern on the grounds that gas appliance manufacturers are likely to be caught napping while the electrical industry runs off with the new customers.

Ask any gas appliance merchandiser how he would like to have a floor full of pre-war models — guaranteed, genuine 1941 or older, to sell now, or after the Japs fold up, and see what he says. Nothing in the world would suit him better. He knows what his public wants; all he asks is a chance to serve them.

Maybe if the truth were known the gas industries will be

better off by the very reason of the fact that they haven't advanced any too fantastic claims for the equipment that will be offered first in the over-rated world of tomorrow.

So we can string along with the gas cooking stove manufacturers with all of the confidence in the world. Gas popularity as a kitchen fuel has been built on their ability to gage what the public wants and will pay for. We have seen not the slightest sign that the stove makers have lost any of their old-time knack in coming up with the right answers when the right answers are in demand.

### Safety Rates Tops

It is probably not much of a professional secret that we reveal when we admit that questionnaires on reader interest that are sent out from time to time are designed to enable the editorial staff of Butane-Propane News to keep on the beam in scheduling the type of contents that will appear in future issues of the magazine.

But the latest one on which the returns have been tabulated—the May issue of this year—brings up a very convincing rebuttal to the complaint that “dealers aren’t interested in safety.” The odds-on favorite out of 20 departments and articles in that issue proved to be “Prevention of Employee Gas Accidents,” which was the first in a series, still running, describing the safety program of the Phil-

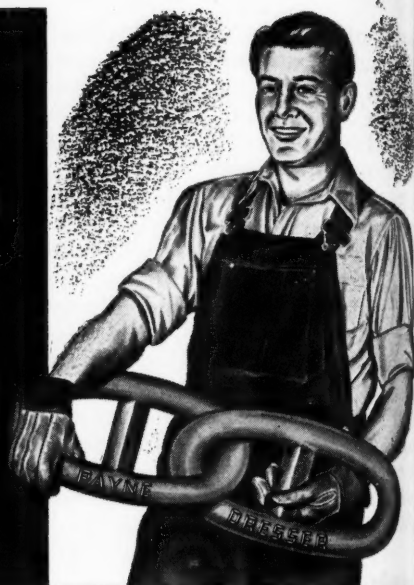
gas Division of the Phillips Petroleum Company.

It is gratifying to us to find that this interest is so high in the minds of our readers. It would be perfectly understandable if many might prefer to read articles on how they could make another dollar, or maybe articles on how they could chisel an extra dime, because they all class as matters of immediate self interest. The willingness to study and learn more about safety and safe practices, on the other hand, has about it an air of mature responsibility to both the industry and the public, that is indicative of the high calibre of dealers and distributors.

There is no easy way to win a reputation for safety, as any dealer who has gained that enviable position will probably verify. It takes eternal and everlasting attention to every detail of every plant, delivery and installation practice to maintain an accident-free record. It means keeping customers educated, too, for they should all be brought to realize, and reminded often of the fact that liquefied gas can be just as dangerous as electricity if it is carelessly handled.

So long as safety rates tops as a subject of reader interest in the industry’s trade publication, we have every reason to believe that the reputation so hard won and richly deserved will be zealously guarded by those members of the industry to whom the acceptance of their fuel is a matter of business life or death.

# NOW LINKED for Strength and Service



To "PAYNEHEAT'S" 30 years' specialized experience and nationwide reputation for fine furnaces are now added the great resources and technical facilities of Dresser Industries, Inc. ★ Thus, sales horizons are widened, postwar opportunities enlarged for PAYNE representatives everywhere. And they will have, as an added, *exclusive* sales stimulant: ZONE-CONDITIONING.

## PAYNE ZONE-CONDITIONING

Circulated winter warmth, cooling summer ventilation, *controlled by zones, rooms or apartments . . .* successor to old-fashioned central heating!

## PAYNE FURNACE COMPANY

(One of the DRESSER Industries)

BEVERLY HILLS, CALIFORNIA



### PAYNE "ZONEAIR"

Compact, streamlined, efficient. Distinguished by exclusive engineering features.

Request  
FREE  
booklet

# PAYNEHEAT

OVER 30 YEARS OF LEADERSHIP





# How To Gage Liquid Levels With Accuracy and Safety

By LEONARD I. HALL

Sales Manager, Rochester Manufacturing Co., Inc.  
Rochester, New York

**S**AFETY devices are more and more in demand and, even if merely from the standpoint of lessened expense, it is a fine thing to know that safety and economy can go hand-in-hand along the road of good human relations and good engineering.

It is a fairly simple matter when considering tanks installed above ground, to determine the approximate level of the liquid in a liquefied petroleum gas tank by observing that section of the tank on which the sun is shining and feeling for the difference in temperature. Even if the sun does not shine, the metal wall of the tank will feel colder where there is liquid than in that portion of the tank wall above the liquid level, especially if the tank is in heavy service and the liquid is rapidly being vaporized as it is drawn off.

However, it is essential in many cases that much more accurate determination of actual volume be made and especially when weather or other conditions do not lend themselves to rule-of-thumb methods.

Hence, the necessity of other means, especially with critical requirements, of knowing quite ex-

actly regarding a tank's contents. The sight-glass gage, after the gage stick, was undoubtedly the first means to be used and in many installations it is still the method, particularly for steam and certain chemicals where there might be quite a corrosion problem if metal floats were used.

However, unless adequate check valves are used in pressure vessels at both ends of such sight-glass gages, there is a real hazard if the glass breaks and such checks materially increase costs.

## First Used on Airplane Tanks

A number of years ago "magnetic type" level gages were first used on airplane fuel tanks and for a few special automobiles such as the Lincoln or other high priced cars.

Thus, the gasoline-air pressure stove industry came strongly into the picture with small liquid level gages or combined level and pressure gages with magnetic pointers, for use on the fuel tanks. Similar level gages are today in use on small distillate fuel tanks for the oil stove trade.

In the liquefied petroleum gas industry we are still familiar in

some places with the long, glass sight gages, although slip tubes and rotary gages are also used. One objection to the sight-glass gage is partly because of the bubbles that form in the tube under some conditions. Likewise, with any mechanical gage depending on packing glands to prevent leakage, there may be times when it is difficult under high pressure to be sure of both safety and ease of taking reading. If the packing is tight enough to prevent leaks it may be too tight to move the indicating member easily.

When it became recognized that permanent magnets could be used to easily transmit the impulse to the pointer through a solid metal wall, a great step ahead was made.

In the magnetic gage this is

accomplished by rotation of a strong permanent magnet in the shape of a horseshoe or a ring on the underside of the dial chamber, such magnet being carried on the end of a shaft and capable of being rotated 300 degrees by being geared to a suitable float arm, swinging between the extreme low and high levels as registered on the dial.

The special float which may be of stainless steel, silver soldered and tested to sustain high pressure, is carried on an arm that is properly counterbalanced so the float rides half-submerged at the surface of the liquid. Such counterbalancing is required particularly for low specific gravity liquids.

It is impossible to gage the liquid

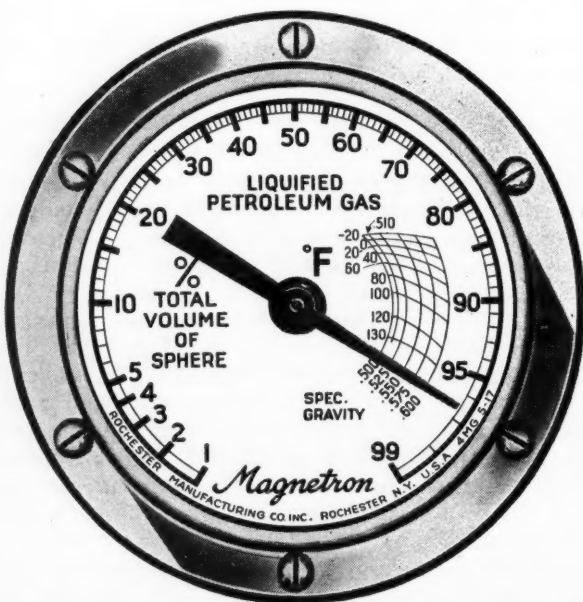


Fig. 1. For proper filling limits. A line drawn from center of dial and across the intersection of the temperature and specific gravity curves will end on the % point for allowable filling. For example: With 60° F. and .88 sp. gr., the % point will be 87.

depth to the completely empty or full water capacity of any container unless very special arrangements are made and this is practically never called for or expected. If a sump or dished portion is provided to allow the float to descend low enough below the tank bottom, such a reading can be shown if a special dial is provided.

To secure requisite accuracy with either the rotary type mechanical gage or with the dial reading magnetic gage, both must be accurately centered in the tank. With a gage mounted vertically the mounting pad should be truly level and the gage support length dimensioned to bring the gear center of the float arm to the horizontal axis of the tank.

Likewise, when the gage is to be mounted on the side or end of a tank, the nozzle or bolting surface should be truly faced so that the

center line of the gage magnet shaft is horizontal. Otherwise, inaccuracies of reading may occur.

All percentage capacity dials, for magnetic gages are laid out so that the 50% mark is at the 12 o'clock position and the pointer will be at this position when the center of the float is at the exact center of the tank, if the gage has been correctly installed, so that the gears are on the axis of the tank, the center of depth. (Fig. 1.)

While it is desirable in many cases to be able to determine the actual liquid gallons in a tank, it is more practical, particularly from the economic standpoint these days, to use percentage dials. Such dials may be used on a varied range of tank diameters or capacities with equal accuracy and without extra cost for different dial layout.

All that is necessary with such dials is to know the total water gal-

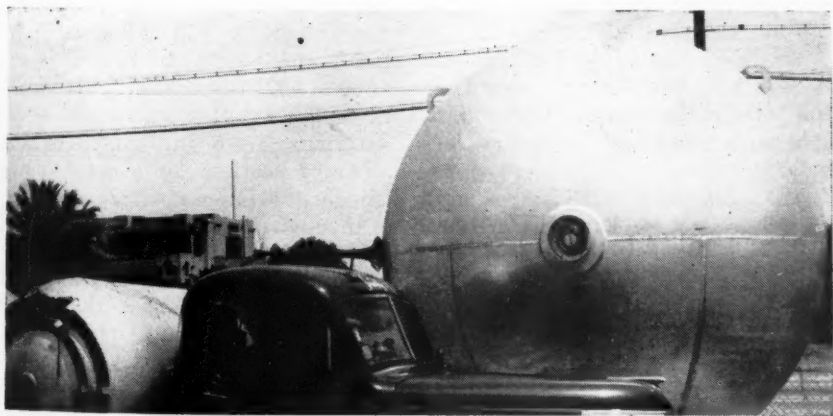


Fig. 2. 136-in. Sphere with 4-in. Dial Gage. By multiplying the total water gallonage capacity of sphere by the percent indicated by pointer, actual B-P Gas gallons are readily obtainable.

*Courtesy Harry I. Horn*

lonage the tank could hold and multiply that figure by the percentage indicated by the gage pointer. If, however, actual gallonage markings must be shown on a dial, it means special layout work and many variations for the various capacities and tank dimensions.

For spherical containers, the percentage depths for various percentage capacities are not the same as for horizontal cylindrical containers. Therefore, different dials are required for gages to be so used.

Generally speaking, we figure on 5% as the low reading in spheres under 48 in. I.D., 2% for spheres 48 in. to 96 in. I.D., and 1% minimum reading for spheres 96 in. or larger.

The highest levels indicated are also these same percentages below the inside top of the tank or, respectively, 95%, 98%, and 99% of the total water gallonage. In practice such levels are not usually reached in liquefied petroleum gas containers. (Fig. 2.)

While on the subject of spheres it may be of interest to note that the total cubic inches volume of a sphere is obtained from the formula:

Vol. Sphere = .5236 × Inside Dia.<sup>3</sup> in inches. Dividing by 231 will give total gallon capacity. Other figures of interest are as follows for spheres.

	Liquid Depth	Radius Float Arm to C/L Float
For 5% Capacity	.135 I.D.	.3884 I.D.
For 2% Capacity	.0839 I.D.	.4428 I.D.
For 1% Capacity	.0587 I.D.	.4689 I.D.

It will no doubt interest some

readers to have a table to refer to, showing the approximate relation between the % capacity and the % depth for horizontal tanks. The conversion table herewith was enlarged from a table from Circular C.416 of the National Bureau of Standard for Horizontal Cylindrical Flat End Tanks, and is quite accurate for the straight portion of any horizontal liquefied petroleum gas cylindrical tank, suitable allowances being required for the head capacity of elliptical or hemispherical heads where extreme accuracy especially on short tanks is required.

In a tank 100 in. I.D. there are 34 gallons for each linear inch.

As an example of some calculations from the above data let us assume such a tank is required to hold 15,000 gallons water capacity and is to have hemispherical heads.

#### Illustrations in Figures

The two heads 100 in. I.D. will hold the same as a sphere; therefore, .5236 × 100 in. divided by 231 = 2266 gallons. 15,000 minus 2266 = 12734 gallons. This again divided by 34 (gals. per 1 in. length) = 374.5 in. length of the straight section for a total inside length of 474.5 in.

In such a horizontal cylindrical tank with a 2% low level on the percentage dial as usually supplied such horizontal tanks, the actual gallonage depth at 2% point would be, from the table, 5.22 in.

For most practical purposes the percentages in the table are accurate enough even with dished head tanks.

When level gages are to be

# **Conversion Table—Horizontal Cylindrical Flat End Tank— % Total Capacity to % Total Depth**

Based on Circular C.416 (Page 10) National Bureau of Standards 10-29-37.

<i>% Total Capacity (3½ Gal. for 100" Depth 1" Length)</i>	<i>Liquid Depth In % Total</i>	<i>% Total Capacity (3½ Gal. for 100" Depth 1" Length)</i>	<i>Liquid Depth In % Total</i>
50.0	50.0	22.	37.19
49.0	49.274	21.780	37.0
48.726	49.0	21.	36.31
48.0	48.422	20.644	36.0
47.423	48.0	20.	35.46
47.0	47.86	19.530	35.0
46.176	47.0	19.	34.50
46.0	46.854	18.466	34.0
45.0	46.07	18.0	33.68
44.912	46.0	17.350	33.0
44.0	45.28	17.0	32.68
43.644	45.0	16.317	32.0
43.0	44.49	16.0	31.70
42.380	44.0	15.264	31.0
42.0	43.699	15.0	30.74
41.117	43.0	14.238	30.0
41.0	42.906	14.0	29.76
40.0	42.116	13.230	29.0
39.653	42.0	13.0	28.77
39.0	41.319	12.240	28.0
38.600	41.0	12.0	27.75
38.0	40.518	11.273	27.0
37.353	40.0	11.0	26.71
37.0	39.716	10.326	26.0
36.109	39.0	10.0	25.64
36.0	38.906	9.406	25.0
35.0	38.107	9.00	24.56
34.867	38.0	8.60	24.0
34.0	37.3	8.0	23.44
33.656	37.0	7.60	23.0
33.0	36.49	7.0	22.26
32.411	36.0	6.80	22.0
32.0	35.66	6.0	21.0
31.200	35.0	5.206	20.0
31.0	34.82	5.0	19.73
30.0	34.015	4.460	19.0
29.982	34.0	4.0	18.36
29.0	33.18	3.743	18.0
28.780	33.0	3.076	17.0
28.0	32.347	3.0	16.88
27.585	32.0	2.6	16.08
27.0	31.506	2.480	16.0
26.400	31.0	2.0	15.22
26.0	30.66	1.870	15.0
25.232	30.0	1.60	14.3
25.0	29.66	1.341	14.0
24.070	29.0	1.250	13.81
24.0	28.94	1.0	13.27
23.0	28.069	.873	13.0
22.920	28.0	.4764	12.0
		.176	1.0



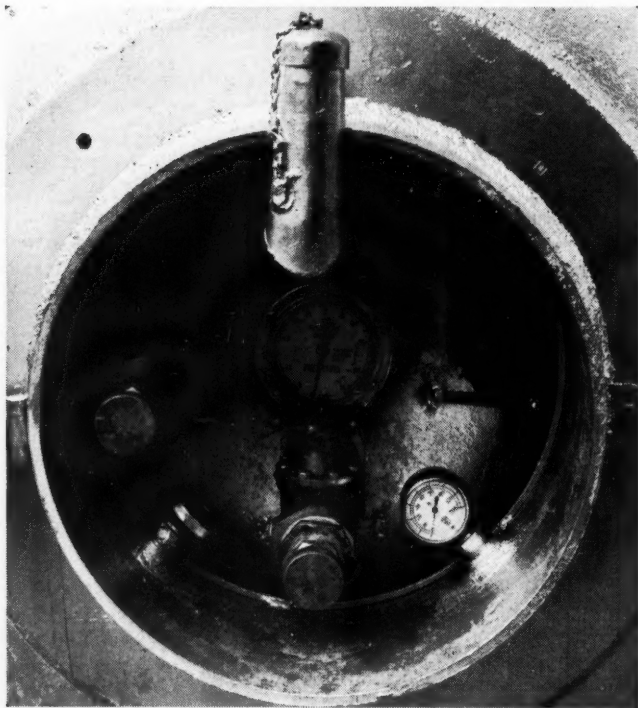
mounted on skid tanks or portable containers, it is obviously needful that such tanks be held level to obtain correct reading. (Fig. 3.)

In some cases, suitable mounting pads have been welded directly into the tank head or shell. The more usual procedure, however, is to provide a nozzle extending a few inches out and with a flange face tapped to take eight 1/2-inch bolts, or stud bolts, as the case may require. Some tank makers have provided protecting covers to meet their customers' ideas. Others have arranged a recess chamber large enough to permit of mounting so

the gage face is below the surface as shown in the accompanying illustrations.

The screws visible in the illustrations are not the mounting screws but those provided in the bezel rim to permit replacement of the window in emergency, without removal of the entire gage.

A valuable adjustment on bulk storage tanks is an accurate thermometer and such are now obtainable for permanent mounting low down on the tank so as to get true liquid temperature easily and quickly and thereby check against proper filling requirements. Fig. 4.



**Fig. 3. Business end of special skid tank. Showing magnetic liquid level gage, pressure gage, dial type temperature gage (lower left), with inlet and outlet valves and safety devices.**

*Courtesy Southern Steel Co.*

For small tanks it is also possible now to secure improved gages with 2-in. dials and with dial chamber and pointer completely removable for servicing in the field without removing gage if tank is in use.

Neoprene gaskets between the gage and tank flange are used, no sealing compound being required to obtain tight seal when the gage head is bolted in place. Such bolting is best accomplished by tightening the bolts alternately across the head.

Liquid level gages should not be modified in the field to be used in other size tanks than for which originally intended, as this may sometimes require alteration of the length of the support members or of the float arm, itself. In the latter case it very likely would also require some adjustment of the counterbalance members to maintain proper buoyancy and it is safest to have such changes made by the manufacturer.

The writer has known of cases where gages have been altered by shortening the float arm for smaller diameter tanks and yet no reduction of counter-balance weight made. This caused the float arm to stay up at the "Full" position, and while the gage was otherwise entirely O.K., the user was stumped by the situation indicating a full tank even before filling started.

As the float arm lengths are designed today, it is not possible for a float to swing low enough to strike the tank bottom and become wedged. The lowest angle reached by the float arm is 20 degrees from the vertical with a total of 140



*Courtesy Phillips Petroleum Co.*

Fig. 4. "Magnetron" liquid level gage at center has cover guard supplied by tank manufacturer. Temperature gage shows at lower part of tank end.

degrees for a corresponding 300 degrees on the dial.

Finally, all magnetic liquid level gages as constructed for use in hazardous liquids have to pass tests by the National Board of Fire Underwriters, and be tested by them as suited to such service. Such approved gages have been known to pass through fire and explosion in serious accidents without any damage to the vital parts that might have caused trouble.

# May Now Re-Install Equipment Used Prior To Feb. 15, 1945

**W**ARTIME regulations governing the reinstallation of liquefied petroleum gas equipment for home use were simplified July 13 by the Petroleum Administration for War.

Deputy Petroleum Administrator Ralph K. Davies called attention to the fact that the War Production Board's Order L-86 (sub-paragraph d-3) has been amended effective July 14, to permit, within certain limits, the reinstallation of household equipment that was actually in use by a consumer prior to Feb. 15, 1945, and which had been removed from use on or subsequent to that date.

(WPB's Order L-86 is administered by PAW.)

## Blanket Approval Given

"Before this order was amended, it was necessary to make application for reinstallations of this kind," Mr. Davies explained. "These applications, however, were automatically approved when the conditions now set forth in the amendment had been met. The change, therefore, is merely a simplification that gives blanket approval to these reinstallations, thereby eliminating paper work in PAW and inconvenience to the public."

Mr. Davies emphasized that the amendment provides that the equipment, when reinstalled, must be

connected only with household appliances — ranges, water heaters, refrigerators, and so on — which formerly were operated on liquefied petroleum gas.

The Deputy Petroleum Administrator said that the amendment should not be construed as being a relaxation in the use of liquefied petroleum gas, which will continue to be needed in huge quantities in connection with the war in the Pacific. He cautioned that special authorization must be obtained from PAW if these reinstallations are for other than household purposes or if the equipment is to be connected with gas appliances not previously operated on liquefied petroleum gas.

Citing the need for continued restrictions, Mr. Davies pointed out that butane, one liquefied petroleum gas that has gone to war, is an important ingredient of 100-octane gasoline. Propane, another, is used by war plants for the heat treatment of metals and for many special purposes.

## ODT Suspends Daily Reports On Tank Car Shipments

Suspension of daily telegraphic and mail reports from liquid commodity shippers and railway tank car operators was announced on July 7 by the Office of Defense Transportation.

# Carburetor Demands Keep Repairmen On Jump In Oil Fields District

By O. D. HALL

**D**ISCOVERY in 1943 of the Four-Counties-West Edmond oil field at Oklahoma City's back door, brought strong demands for carburetor, vaporizer, and regulator equipment for use on drilling rigs using liquefied petroleum and natural gas. This came at a time when shortage of men, materials and equipment was most critical.

New wells were being started at the rate of one or two a day and the drilling pace must be kept up or the war effort would suffer. Similar activity was evident in other fields though development was less rapid.

In Oklahoma City is the Binkley Co., which has been serving oil fields with stationary engine equipment for many years. The combined war and oil field requirements impelled this company to make a quick readjustment from sales to maintenance and repair service. The Binkleys were losing skilled workmen to the military services and new men must be employed and trained to replace them.

## Owner Returns to Shop

D. H. Binkley and his brother, C. W., owners of the business, conferred and decided that one of them must take a place in the shop to train new men and make a regular hand at the bench. The job fell to D. H., who may now be found any day wearing overalls in his shop busily engaged repairing or rebuilding equipment or guiding some of the workmen in such operations.

This situation threw double duties in the lap of C. W., who works harder than ever in the front office attending to management problems and cler-

ical details. Results have not been unfavorable for the 25-year-old Oklahoma City firm. Although sales are pretty much shot as compared with former days because of war-time scarcities, maintenance business has more than doubled.

Since drilling of many wildcat and field extension oil and gas wells depends on the continuous, smooth operation of the equipment supplied by



D. H. Binkley working on internal combustion engine equipment used in Oklahoma oil fields.

the Binkley's, much repair work, rebuilding and replacement of new parts is required and the service must be furnished promptly and efficiently. This sometimes requires night work.

An expansion of the shop of the firm is now underway to meet these growing responsibilities. An additional room is being equipped for these activities.

When the firm, about 15 years ago, took over the Ensign carburetor agency for central and western Oklahoma, little was known among field maintenance men about liquefied petroleum gas carburetion, vaporization and pressure regulating equipment. But demands for B-P Gas as fuel for drilling oil and gas wells, particularly in locations where natural gas was not available, were steadily increasing.

"Although our equipment was new and operating efficiently, it was the least understood and often was blamed for a break-down when the real trouble was due to some other failure," said the Binkleys in explaining early day maintenance problems to this writer.

#### Made Unnecessary Trips

"Frequently we had to send service men long distances, when their investigation revealed that work stoppage was due only to ignition failure or some other minor trouble not connected in any way with our equipment.

"It was then that we decided to do a lot of educational work, through advertising, field work and otherwise, to acquaint maintenance and repair crews with our equipment. The Ensign company gave us most valuable cooperation in this connection. Now we are seldom called upon to adjust any minor troubles. Our difficulties now arise through natural wear on parts, due to the fact that some of our equipment is getting old."

Some rebuilding of equipment is necessary but most repairs can be taken care of from the large stock of parts maintained by the firm and the manufacturers. The Binkleys are still able to sell some new equipment but only to those who can qualify for priority ratings through Washington, D. C. The firm at present is making no effort to install B-P gas carburetion equipment on commercial trucks and is confining its operations almost exclusively to serving war and other essential industries. This keeps it extremely busy and imposes many difficult problems on the service department because of shortage of workmen and scarcity of materials.

As younger men were released by the company for military service older men were taken into the shop and trained personally by D. H. Binkley. No training school was established but each man was instructed at his work bench by showing or telling him how to perform each operation. Sometimes D. H. allowed the workman to stand by and watch him make a repair so that he would be able to do it himself when the next job of his kind arose.

"By paying our employees as well as possible, exercising patience in training them and maintaining regular hours so far as possible, we have been able to keep most of the men we now employ," D. H. said.

#### Will Decentralize Allocation Of Commercial Vehicles

Effective Aug. 1, ODT will decentralize the allocation of all new commercial motor vehicles in the light (below 9000 lb. g.v.w.) and medium (9000 lb. to 16,000 lb. g.v.w.) weight classes by receiving and acting upon applications for vehicles in these categories only in the ODT district offices.



# Natural Gasoline Plants Benefit By Easing of Orders

THE first steps toward opening the way for the petroleum industry to begin preparing to reconvert to a peacetime basis have been taken by amendments to five wartime restrictions, Deputy Petroleum Administrator Ralph K. Davies stated July 13.

Mr. Davies announced that Petroleum Administrative Orders 11, 12 and 15 have been amended, effective July 14. He also called attention to simultaneous changes made by the War Production Board, upon recommendation of the Petroleum Administration for War, in Limitation Order L-86 and Preference Rating Order P-98-b.

As amended, Mr. Davies said, PAO-11 and PAO-15 remove previously existing prohibitions against construction of certain refining, transportation, natural gasoline and special production facilities.

## Can Use Up to \$25,000

There is now no limit, he explained, on the quantity of materials that can be used in these operations provided not more than \$25,000 worth of the materials is obtained with priorities assistance.

Amendments to PAO-11 and PAO-15 also eliminate a restriction regarding duplication of gathering lines for natural gas or crude oil, this provision being deemed no longer necessary. It was emphasized, however, that it is desira-

ble, because of the war requirements, to use materials for expanding rather than duplicating gathering facilities.

PAO-12, which covers marketing and distribution operations, Mr. Davies continued, has been amended to permit use of construction materials and equipment in bulk plants if the cost of the materials and equipment does not exceed \$40,000; and in retail outlets, such as service stations, if the cost does not exceed \$10,000. Previously, the limit was \$5,000 for bulk plants and \$1,000 for retail outlets.

## Bulk Plants Limited to \$500

P-98-b has been amended to permit service stations to acquire up to \$500 worth of materials with priority assistance for maintenance and repair, except that such assistance cannot be used to acquire pumps or tanks. A similar provision covering bulk plants is retained. Minor changes also have been made in Schedule D to P-98-b relaxing limitations on the use of structural steel and copper-base alloys.

L-86, as amended, permits the use of up to \$40,000 worth of materials in liquefied petroleum gas bulk plants *but does not allow installation of liquefied petroleum gas equipment in these plants.*

The PAO orders and L-86, as amended, limit the total cost of

materials to be used in the construction of a building to \$25,000 because of WPB restrictions on scarce building materials.

"These amendments," Mr. Davies said, "are in accord with PAW's desire to free the petroleum and liquefied petroleum gas industries from Government controls as rapidly as this can be done without impeding the war program.

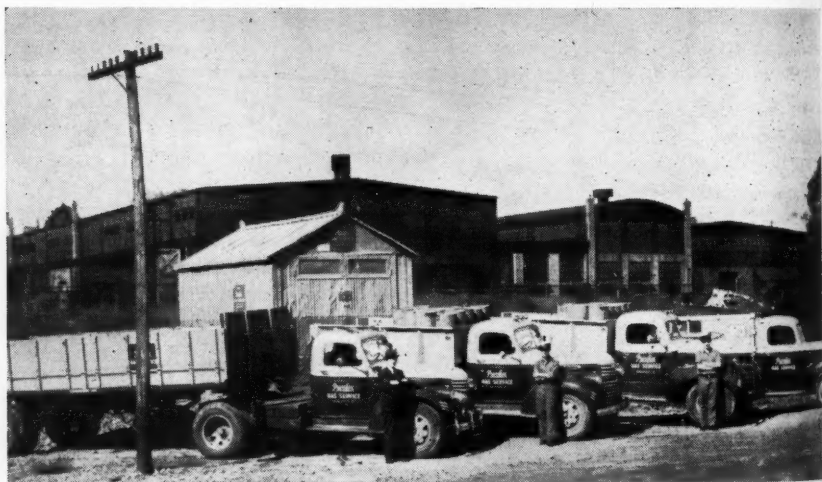
"The amendments grant considerably more freedom to the industry in repairing, altering, or expanding facilities when the materials can be obtained without priorities assistance.

"The materials situation," he continued, "is still sufficiently critical to require continuing controls

over the use of materials obtained through priorities assistance. This is particularly necessary in well-drilling operations, restrictions on which remain unchanged.

"Exceptions to permit acquisition of priority materials above the ceilings provided in the orders will be granted only for such construction as may be required specifically for essential war program operations. No exceptions sought merely for convenience or to carry out post-war plans will be allowed.

"Operators are urged to determine to what extent additional priorities assistance, if any, is needed for war programs. Applications for such assistance should be made before beginning construction work."



Buchan's of Mansfield, Ohio, serves the surrounding area with "Pyrofax" gas from a fleet of trucks, one of them a tractor-trailer unit for bulk hauling of Pyrofax, from a central filling station in Mansfield. Bob Bammerlin is in charge of Buchan's Pyrofax business. About 700 customers within a 50-mile radius are served by the company. Those in the picture are (left to right), Harry B. Buchan, proprietor; Bob Bammerlin, and Bob Maurer, service and deliveryman.

# PUMP PROBLEMS

## Right and Wrong Installations

By R. STANLEY SMITH

Manager, Smith Precision Products Co., South Pasadena, Calif.

PROBLEMS involved in liquid transfer are rated among the most important confronting operators throughout the country today. Much technical and engineering information is required to properly install a pumping system and keep it efficiently at work.

We began a series of articles in June which will enable pump users to better understand and correct difficulties which may arise in the field.

R. Stanley Smith, manager of Smith Precision Products Co., South Pasadena, Calif., manufacturers of Smith butane-propane pumps, reveals in the accompanying Questions and Answers ways to avoid some of these difficulties in pumping butane and propane. Next month we will publish another in the series by Mr. Smith.—Editor.

IN this paper, examples of good and bad pump installations, as laid out by individual butane and propane dealers, will be discussed. We believe a study of these original layouts will be helpful to others having similar problems and permit them to adopt such of the better features as may fit their individual requirements, and to avoid others which have proven less satisfactory.

**PROBLEM 1:** What is the correct location for mounting a butane or propane pump with reference to the storage tank?

**ANSWER:** With few exceptions,

the pump should be located as near as possible to the tank from which liquid is to be withdrawn.

**Example:** The (A) Butane Company had several butane storage tanks located on a railway siding where tank cars were unloaded. (See Fig. 1.) Presumably, for the convenience of tank truck drivers and the office facilities which this company occupied, the loading rack for tank trucks, including the pump, was placed on the main highway some 200 feet from the storage tanks. Piping was laid above ground to the pump, with no protection from the sun's rays for either pump or piping, this plant being located in a southern state.

**Result:** The pump was reported as operating with poor efficiency and frequent vapor lock, necessitating blowing off gas near the pump to get flow started.

**Analysis:** Piping and pump, exposed to the sun's rays, at times for hours between fillings, resulted in vaporization of butane in the line to the pump, and at the pump, causing frequent evacuation of liquid in the line, the liquid being forced back by the gas formation into the storage tank. Also after getting liquid through the line by the discharge of gas at the loading rack, pump suction through the long line still had a tendency to cause gasing of the intake liquid, and a foaming intake which prevented the development of a satisfactory flow and discharge pressure.

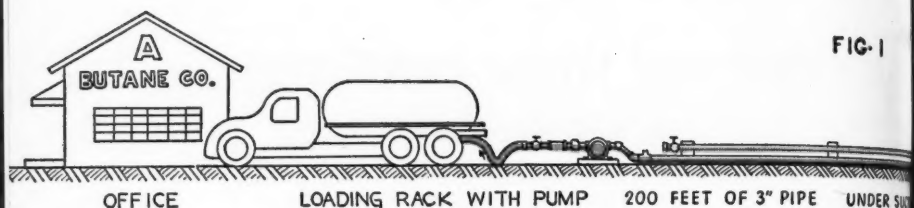


FIG-1

**Cure:** The station was rearranged as shown in Fig. 2, placing the pump close to the storage tank, with the loading rack still in the same place. The pump motor was operated by remote control by placing an explosion proof push button at the loading rack. Under these conditions the pump operated perfectly with the delivery output nearly doubled, with far less wear and tear on the pump, and no heating through dry pump operation.

**PROBLEM II:** What size piping should be used for a butane or propane pump?

**ANSWER:** A rather complete explanation of the principles governing this item was covered in last month's paper. As there explained, the height of the liquid level above the pump intake must be taken into consideration. With a high inlet head the pipe may consistently be of smaller size. Also the necessary size of piping and fittings may depend on the type of fittings, particularly as regards changes of flow direction.

## WRONG

**Fig. 1—Incorrect installation of pump with long suction pipe line which resulted in pump starvation and consequent poor delivery.**

**Example:** The (B) Butane Company (See Fig. 3) recently installed pump having an output capacity of 100 GPM, placing this a distance of 20 feet from the storage tank and using 2-in. extra strong piping and fittings. The average liquid level in the tank above the pump intake was 4 feet. Operation was for tank truck loading only, with a low differential pressure required.

**Result:** Maximum delivery obtainable was 58 to 60 GPM and the pump was reported as being somewhat noisy.

**Analysis:** Pump starvation was definitely indicated due to inadequate inlet piping size. The 60 GPM delivery was all that could flow to the pump due to the restricted pipe size for the available head.

**First Attempted Correction:** The company assumed that, the supply being limited, the addition of several

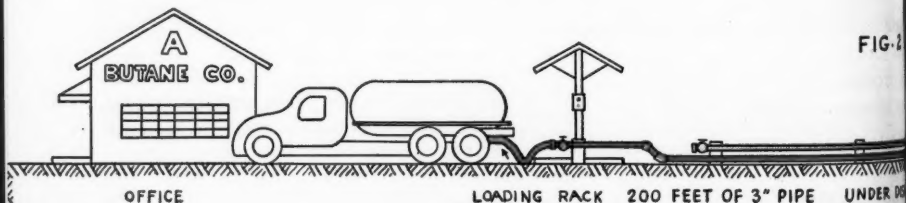


FIG-2

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FIG. 2

UNDER SUR

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STORAGE TANKS

NEW PUMP LOCATION

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COMPRESSOR HOUSE

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RAILWAY TANK C

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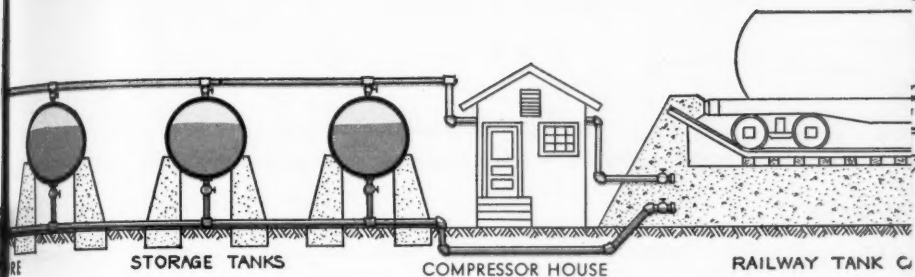
RAILWAY TANK C

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more tanks to the intake lines would help matters. Consequently they connected lines as shown in Fig. 4.

**Result:** Exactly the same delivery was made with a maximum of 65 GPM when tanks were full.

**Analysis:** The addition of the other tanks with delivery still through the restricted intake line did not help to pump liquid to the pump.

**Second Correction:** Pipes from the three tanks were then manifolded into a single new 3-in. pipe line as shown in Fig. 5. The flow from the several tanks was introduced with Y fittings as shown, to avoid velocity losses. A 1-in. strainer was inserted.

**Result:** Pump delivery was in-

## RIGHT

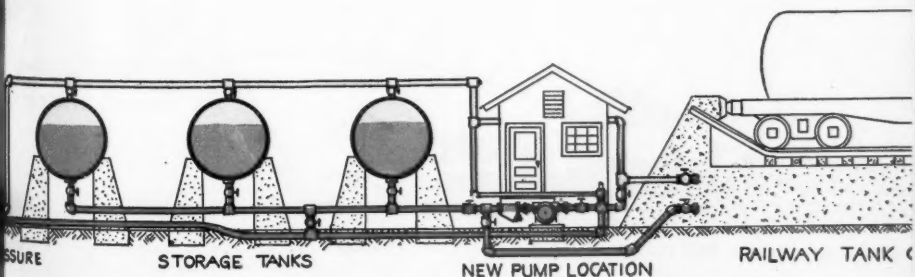
Fig. 2—Corrected installation with pump mounted near storage tank with line to loading rack on pressure side of pump. This change also permitted the use of pump to assist vapor compressor in unloading, reducing unloading time to approximately one-half.

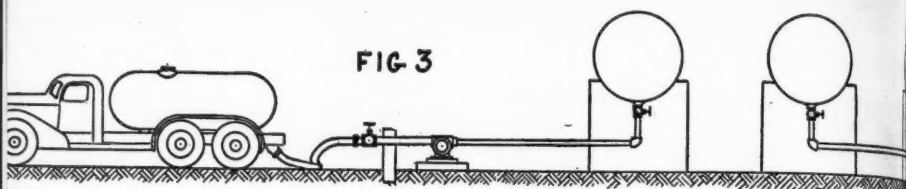
creased to 90 GPM, which was good considering certain unavoidable restrictions in the tank outlets, these having been equipped originally with 2-in. excess flow valves. Pump operation was quieter and delivery was satisfactory.

**PROBLEM III:** What should be the position of a butane or propane pump with reference to the height of the liquid level in the storage tank?

**ANSWER:** Usually the correct answer is to place the pump just as far below the liquid level as is possible, the important thing being to plan the layout so that the full anticipated output may reach the pump by gravity flow alone, that is, without dependence on pump suction. The reasons for this were quite fully covered in last month's issue.

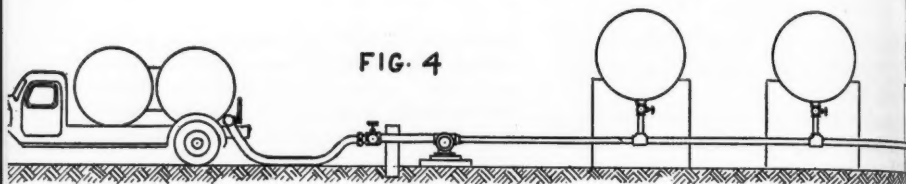
**Example 1:** The (C) Butane Company was interested principally in





## WRONG

Fig. 3—Pumping from a single storage tank through a 2-in. extra strong pipe



## WRONG

Fig. 4—Pumping from three storage tanks through a 2-in. extra strong pipe line

loading tank trucks, although they also had an excellent bottling business. Their property was located partially on a hill side. The main boulevard passed through their property over a ravine which had been filled to the level of the roadbed. Their pumping layout was developed as shown in Fig. 6, and a 100 GPM capacity pump was piped with 3-in. extra strong pipe and

with a 4-in. globe valve at the tank outlet. A tank loading space was graded at highway level, and the storage tank was conveniently located just below road level, which facilitated loading operations.

*Result:* Most excellent speed of delivery was attained, frequently exceeding the 100 GPM pump rating which was no doubt due to having a

Fig. 6—A very successful installation where the pump was placed some distance below the storage tanks and butane was pumped back to the truck loading rack at the upper level. This pump also handled the bottling plant situated at the lower level.

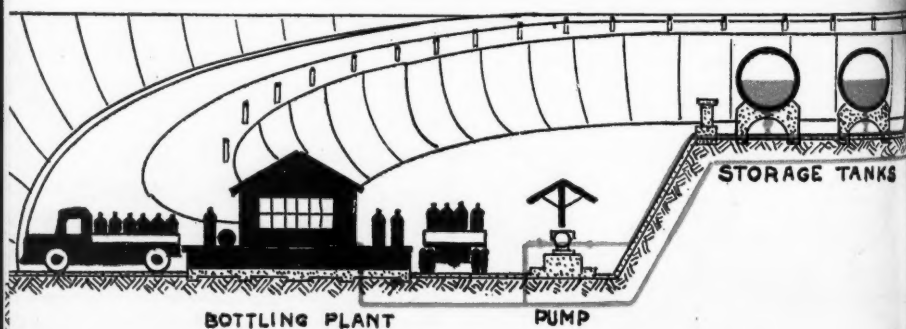
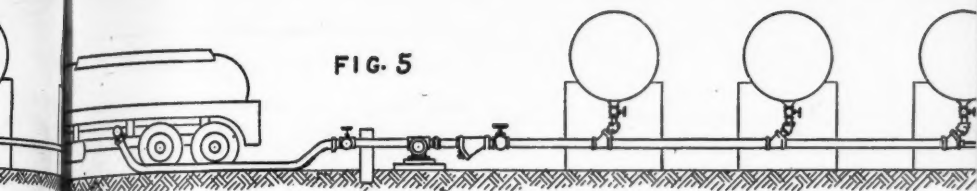




FIG. 5



HT  
 Pumping from three storage tanks manifolded into a single 3-in. pipe line.

high positive liquid head on the pump intake. Filling operations amounted to an average of 10,000 gallons per day and this pump operated with practically no maintenance over a long period of service. It demonstrated the advantage of a solid liquid flow to the pump by means of ample head pressure and inlet pipe size.

*Example 2:* The (D) Butane Company occupied a location of very restricted size and planned their storage in a vertical tank as shown in Fig. 7. The pump was located at some distance from the tank and a 2-in. pump was piped up with 1½-in. standard pipe, possibly for reasons of economy of fittings.

*Result:* Initial operation was accepted as satisfactory, partly because not too much speed was required. Most of the deliveries were to small tanks and to customers' bottles

through very small fittings. The pump was reported as noisy, but as otherwise operating satisfactorily. Eventually, however, after weeks of service, a report was made that pump operation was not good, and a complete analysis was requested. The report read as follows:

*Analysis:* 1. Height of liquid level due to the vertical position of the tank, varied from 18 feet to 6 feet above pump intake. At 14 to 18 feet height, operation was found to be quite satisfactory. However, at the 6-foot height, when pumping into a bottle with restricted fitting size, the pump would sometimes heat and vapor lock.

2. While pump capacity was 50 GPM, the average filling was less than 5 GPM, due to the restricted outlet into small containers.



Fig. 6

3. Piping sizes were less than half that required for the pump capacity and the bypass valve which had been installed was piped back to the tank through 30 feet of  $\frac{3}{8}$ -in. O. D. copper tube.

*Remarks:* This customer is still using this equipment and operates by keeping his tank level in the upper half, and by occasional pump parts replacements, due solely to a poor layout and lack of balance of pump and pipelines to his capacity requirements.

---

### Have You Pump Trouble?

Have you any pump problem you can't solve satisfactorily?

Write us the details. State exactly what you are doing, what results you are getting, what results you are trying to get.

Mr. Smith will arrange to cover your point in one of his future articles.—Editor.

---

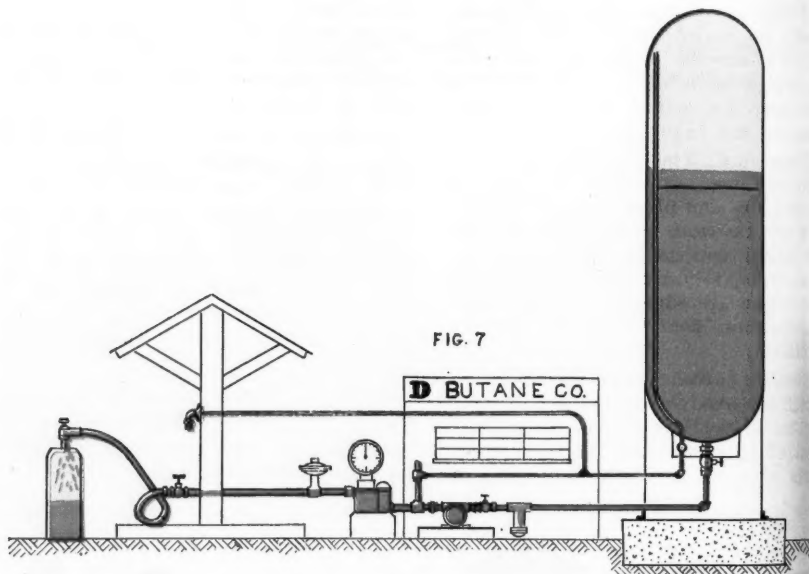


Fig. 7—Vertical Tank Installation. This system resulted in too much variation in pump head pressure. Even with the restricted piping size, fairly good results were obtained when the tank was full, but when operating with tank level in the lower half, pump was badly starved.

# Handy Device Aids Installation

**D**URWOOD Hutchinson, northern California superintendent for the Imperial Gas Co., of Los Angeles, has built a new holder for gripping tanks firmly while valves are being inserted.

For 15 years, the Imperial Gas Co. has used brake band holders of one sort or another. Usually, these have been fastened to a board. The holder has been at the bottom of the cylinder. Mr. Hutchinson has devised a new and adjustable holder which will interest those who have spare time and who can do welding.

This holder is built to catch the top or valve-protecting collar of the cylinder. It is adjustable and can be used for small 5-gal. tanks as well as for the 50-gal. size.

In Fig. 1 (at left) the adjustable sliding plate which holds the bottom of the cylinder is shown. Above it is

the emergency brake band holder—in this case, a Dodge emergency brake band. This is easily opened and quickly closed and clamped around the valve protecting collar. This collar is 7 in. in diameter.

The sliding base upon which the cylinder sits is made with a piece of larger pipe. The two supports also slide into each other. A locking mechanism is shown at the left to hold the base in any desired position. It will be noted that the two supports stand upon a plate base.

The whole apparatus weighs less than a cylinder and is usually taken to the work. In this manner, valves can be inserted faster than where the cylinders must be brought to the valve-holding device. Mr. Hutchinson claims double speed for this device.

Fig. 2 shows the device standing

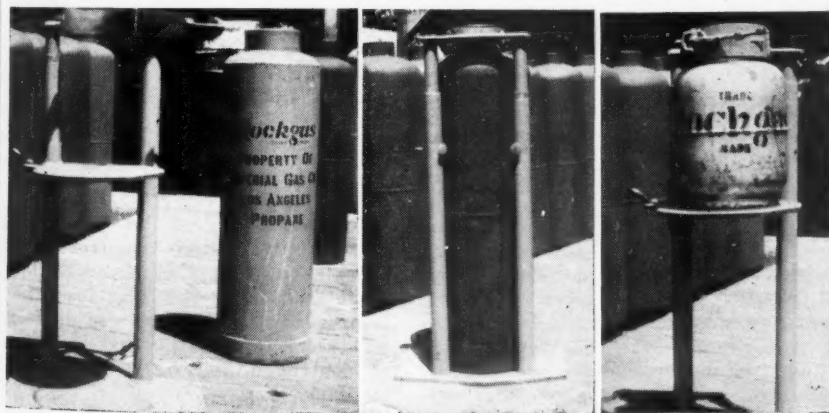


Fig. 1. This shows several views of a cylinder holder built by Durwood Hutchinson, Mountain View, Calif. At left is the adjustable sliding plate which holds the bottom of the cylinder. Above it is the emergency brake band holder. In the center is a 11 x 50-in. cylinder firmly secured. At right is a 11 x 17-in. cylinder in proper position for inserting valves.

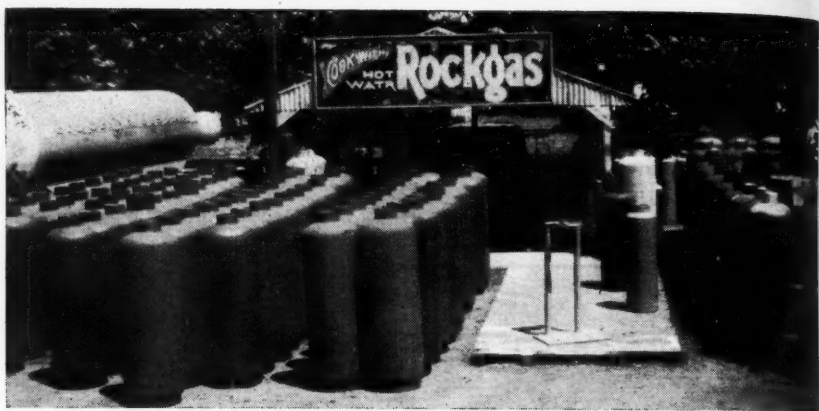


Fig. 2. The sliding base for holding tanks while adjusting valves can be seen here upon a filling plant hoist, built at the ground level. The hoist can be elevated to truck level for loading.

upon a hoist. It also shows the filling plant at Mountain View, Calif., which is built upon the ground level.

At this plant is used a gasoline station-type hoist for loading cylinders into trucks. The cylinders are filled and then brought to the hoist. By pressing a valve, the hoist is raised to truck level.

## Certificate Uses Explained In New and Cancelled Orders

Stove dealers, distributors, and manufacturers will give a uniform type of certificate receipt to consumers who cancel their orders for rationed stoves before delivery if the original certificates given with the orders cannot be returned.

A consumer who transfers a new stove to a dealer, distributor or manufacturer will also be given this uniform type of receipt if the consumer's original certificate is not available.

Dealers and distributors have been using various forms, and consumers are finding it difficult to get certificates in exchange for their receipts

from local War Price and Rationing Boards. Use of the uniform receipts will simplify the exchange for both the consumer and the local boards.

New stove purchase certificates now being issued by local War Price and Rationing Boards will replace previously issued certificates being taken out of circulation both for consumer and trade use later this summer, OPA announces.

## Reseller Eliminated in Free Flow of Controlled Materials

Reference to a reseller of controlled materials was eliminated from Direction 48 to Controlled Materials Plan Regulation 1 by the War Production Board July 6. The amended direction now refers only to purchases or sales of controlled materials by an intermediary.

Reference to a reseller no longer is necessary in Direction 48 as the "open ending" of Priorities Regulation 13 (Special Sales) permits a free flow of controlled materials through a reseller, WPB explained.

# QUIZ

## EQUIPMENT

### Selection Installation

• This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: *The Bottled Gas Manual*, *Handbook Butane-Propane Gases*.

### Questions

### Answers

1

What is the first step in sizing and selecting the equipment for a bottled gas installation?

Determine the connected load and attempt to estimate the potential connected load, such as additional appliances that will be connected up in the near future.

2

What size regulator is required?

When the load is determined, select a regulator having ample capacity to handle required amount of gas, taking into consideration that the upstream pressure may be as low as 3 to 5 psi, when the cylinder is nearly empty.

3

How can the capacity of the regulator be determined?

Regulator manufacturers furnish capacity curves for their different sized regulators and this information should be obtained and kept on hand.

4

What determines the size of the cylinder installation?

The number of cylinders required is determined by the load and the weather conditions. Reference to *The Bottled Gas Manual*, Table 13, Page 28, will assist in the selection of sufficient cylinders to insure constant supply pressure to the appliances.

**5**

**Is cylinder housing necessary?**

Housing the cylinders in cabinets and the use of hood protectors is optional with the operator. Climatic conditions, appearance, location, accessibility by children or others are all factors that should be considered and most often some means of protection is advisable.

The most important step in a cylinder installation is a safe, workman-like job.

**6**

**What is the most important step in making an installation?**

**7**

**What major factors contribute to make a safe and workman-like installation?**

(1) Installation should be made on a firm and level foundation, resulting in the cylinders being plumb.

(2) Piping should be leak-free and fitted so there are no unnecessary strains on the regular assembly.

(3) Cylinders should be located away from windows or doors, if possible.

**8**

**What other considerations are important in installation location?**

Accessibility is essential. The condition of the location in winter should be kept in mind as service will be required by consumer regardless of weather.

**9**

**What regulations govern the type of installation allowed?**

State and local regulations, if any, should be determined and abided by. Installation should be made in accordance with the NBFU Pamphlet No. 58.

**10**

**What tests are essential upon completion of installation?**

Before gas is turned on, the house piping should be pressure-tested with air, check should be made for possible leakage and repairs made. All piping and connection at the tanks and regulator should be checked for leaks with soap suds. Pressure test should be made in the down stream side of the regulator and adjustment made to 11 in. of W. C. operating pressure. Full load test with all appliances burning should be made and check made to see that regulator has sufficient capacity to handle the load.

---

**SUBJECTS TO BE COVERED IN FORTHCOMING ISSUES:**

● Pipe Lines ● Testing for Leaks, Burner Adjustment ● Thermostats, Pilots and Pilot Controls ● Burner Design and Application ● Appliance Conversions.



# Dutch Oven

**will help you  
build a MORE  
PROFITABLE  
bottled gas  
business!**



**THE Dutch Oven Retained Heat**  
L.P.G. Range is engineered for the particular use of bottled gas.

It offers gas economy, freedom from pot watching, high quality construction and scintillating beauty that are hard for any housewife to resist. Only Dutch Oven automatically turns off the gas and keeps right on cooking.

With it you can build your bottled gas load, cover your territory more intensively, and enjoy freedom from costly long distance service calls.

As a quality gas range, it offers you a better profit on your range business and is your best medium to defeat competition from other fuels.

The Dutch Oven Franchise will be one of the most valuable and profitable in the entire industry. With its load building potentialities, you cannot afford to be without it. Investigate Dutch Oven today.



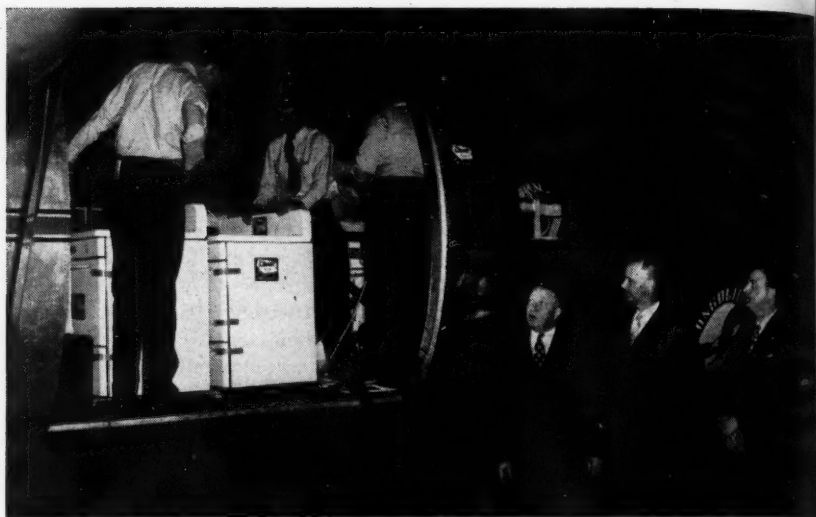
Only Dutch Oven automatically turns off the gas  
and keeps right on cooking

## Dutch Oven Gas Ranges

A. G. A. Approved for L.P. Gases

**GLOBE AMERICAN CORPORATION**  
KOKOMO INDIANA

General Sales Office, 800 Field Bldg., 135 South LaSalle St., Chicago 3, Illinois



The arrival in Los Angeles of the first gas ranges to be delivered by fast air express by American Airlines. They were flown from Chicago to destination in 11 hours. The men in the foreground are C. R. Woodson, Cribben & Sexton San Francisco manager; F. M. Banks, vice president, Southern California Gas Co., Los Angeles; Lloyd Langworthy, Cribben & Sexton Los Angeles manager.

## Gas Ranges Flown to Coast

**I**N a remarkable demonstration of the new speed and economy which commercial airline transport can give to the distribution of durable goods, the first experimental, large scale air shipment of cargo in aviation history was completed successfully July 11 when Cribben and Sexton Co., at Chicago, Ill., flew a full load of 18,500 lbs. of Universal gas ranges from Chicago to Los Angeles.

These 18,500 lbs. of gas ranges left the production line of the Universal gas range plant in Chicago at 6 a.m. Wednesday, and were loaded and in flight from the Chicago muni-

cipal airport at 9:30 a.m. They arrived in Los Angeles at 7:35 p.m., less than 11 hours from the time they left Chicago, 2300 miles away.

Not only was this remarkable a point of time, but as a demonstration of practicability, as more than half of the gas ranges were shipped encrusted to establish proof of savings in time, labor and material normally used in crating as protection against damage in shipment to this type of domestic home appliances.

The cargo ship that successfully accomplished this epoch-making flight marking a milestone in the transportation future of the postwar world was a Consolidated-Vultee XC-39, the only one of its kind in the world and so large that it carries three and one-half times the pay load of any plane now in operation.

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Weatherhead

*Firsts*

Solving Problems  
for Industry

\* FUMED FITTINGS

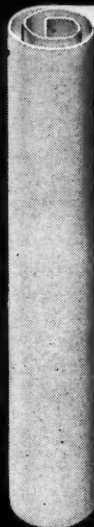
\* O.R. HOSE END  
FITTINGS

\* BRASS STEEL  
FITTINGS

\* HYDRAULIC BRAKE  
LINES AND  
BRAKE FITTINGS

\* FIRE-RESISTANT  
HOSE ASSEMBLIES

\* THE WEATHERHEAD  
T-RING PACKING



## HOW TO SAVE YOU A PENNY

**H**AVE you thought much about performance of small parts in new peacetime products—and how much these parts cost?

Countless times since 1919 Weatherhead has been assigned the job of saving "a penny a part" for a manufacturer—and has solved the puzzle and delivered a finer part in the bargain. At Weatherhead this kind of thinking begins at the beginning—in the laboratory—where a steadily growing staff is trained to consider engineering, production

and marketing factors all as interlocking parts of each job at hand.

One of many examples:—When hydraulic brakes were adopted for the automobile, Weatherhead developed a hydraulic brake line only one-half the size of those previously used, and produced it for less cost to the automotive industry.

That's why we can say, "Look ahead with Weatherhead." We invite you to write our Sales Engineering Department for assistance in solving your postwar parts problems now.

Look Ahead with



**NOTE:** Write on company letterhead for "Seals of Industry"—24-page illustrated story of Weatherhead facilities and products ready to serve you.

## Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 6, OHIO

Plants: Cleveland, Columbia City, Ind., Los Angeles  
Canada—St. Thomas, Ontario

# Safety

## Test Exam on "NBFU 58"

### PART 2: BASIC RULES

**P**ART of the "safety meetings" program of the Phillips Petroleum Co. concerns questions and answers on the National Board of Fire Underwriters Pamphlet No. 58 to familiarize employees with its important provisions.

The accompanying chapter, and one more to follow, cover this subject and the correct answers will be found on page 112, but first see what score you can make on these questions.

(1) At atmospheric pressure and 20°F. temperature, butane would be in what form?

(2) At atmospheric pressure and —30°F. temperature, propane would be in what form?

(3) All liquefied petroleum gases shall be effectively odorized to determine their presence in mixture with air to what limit?

(4) What are the requirements with respect to examination listing and testing of equipment? 1... 2....

(5) The system and installation may be inspected and approved by

(6) A system designed for 100 lbs. working pressure may be filled with a product at 30°F. liquid temperature if vapor pressure of product does not exceed .... lbs. at 100°F.

(7) If a container were ASME designed for 125 lbs. working pressure the API-ASME design would be for? .... lbs. W.P. The maximum safety valve setting on ASME tank would be? .... lbs. pressure. On API-ASME tank would be .... lbs. pressure.

(8) ICC container shall be tested at time of manufacture in accordance with? Shall be retested in accordance with?

(9) All containers shall be tested at time of manufacture in accordance with?

IT IS AN INCREASING practice among progressive companies to hold safety meetings in their own organizations. The Philgas Division of the Phillips Petroleum Co. is one such company. It has a well planned program, one that can be, and should be, followed as closely as possible by all dealers and distributors.

This Philgas safety program has been made available to the LP-Gas industry through F. F. Campbell, manager of the retail division, and will appear, chapter by chapter, in BUTANE-PROPANE News.—Editor.



F. F. CAMPBELL

"I'm making every stop count twice



... for extra profits after the war"

"TODAY, by taking a few extra seconds on each call, I'm making every stop count twice. Here's how.

"First, I'm keeping in close touch with my customers' problems, giving them the kind of service they like. For example, if their appliances need a minor adjustment or cleaning, I make it immediately. Of course, that builds good will...makes sure my customers stay with me after the war. It's surprising, too, the way they've spread the word about my

friendly service to their neighbors.

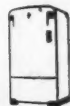
"Secondly, at every delivery, I check into my customers' post-war appliance needs. Then I jot that information on a small index card. The result? I've got a really live prospect list. And that list will give me the jump on competition when appliances—like the new, improved L-P Gas Refrigerators—are available again.

"So, if you want extra profits after the war, try this easy way to make every stop count twice."

**SERVEL, Inc.**



PEACETIME MAKER OF THE SERVEL GAS REFRIGERATOR



(10) By whom may containers be marked? When?

(11) Aboveground containers shall be marked with information as to maximum vapor pressure at 100°F. of the product to be contained therein, where? On underground systems, where?

(12) Containers, other than ICC containers shall be equipped with device to indicate the maximum level to which the container may be filled with liquid for what temperature range? In what increments?

(13) Under what filling conditions are containers excepted from the provisions of Question 12?

(14) Is it required that outside diameter and overall length be marked on aboveground containers? On underground containers?

(15) Where shall first stage regulating equipment be located?

(16) An aboveground container of 475 gallons water capacity may be located how close to adjoining property line upon which a building may be erected?

(17) An underground tank of 1000 gallon capacity may be installed how close to adjoining property line?

(18) In the case of buildings devoted exclusively to gas manufacturing and distribution operations, containers shall be installed at least how many feet from such building?

(19) For what pressure must valves be designed?

(20) What property must valve seat material possess?

(21) Where shall shut-off valves on connections to containers be located?

(22) What is the purpose of an excess flow valve?

(23) Where shall such excess flow valves be located?

(24) What openings on containers do not require an excess flow valve?

(25) What materials may be used for piping a container?

(26) What is the minimum designed working pressure of such piping?

(27) What size piping is permitted where liquid propane is piped into buildings, other than commercial gas plants, cylinder filling stations or industrial vaporizer buildings, without pressure reduction?

(28) Are cast iron fittings permitted?

(29) When are extra heavy fittings required?

(30) May approved flexible connections be used on both high and low pressure side of regulators?

(31) How shall tests for leakage in piping be made? At what pressure?

(32) What care must be used where house piping passes through outside building walls below ground?

(33) May piping be installed both aboveground and below ground? What are piping installation specifications?

(34) Where are shutoff valves additional to those at containers required?



(35) What property must hose possess?

(36) Hoses designed for use at container pressure shall be designed for what working pressure?

(37) What is minimum designed working pressure of hoses used on LP-Gas systems?

(38) What equipment is required on a hose used for transferring liquid from one container to another?

(39) Relief valves on containers other than ICC shall be of such capacity as to present building up pressures beyond what limit?

(40) Under what conditions may shut-off valves be installed between container and safety valve?

(41) Shall safety valves communicate with the liquid or vapor space of container?

(42) What is the max. pressure at which liquid may be piped into a building? Where shall pressure reducing device be located?

(43) Under what conditions may vaporizers be installed within buildings other than buildings designed especially for that purpose?

(44) Where shall the device supplying artificial heat to vaporizer be located?

(45) What markings are required on vaporizers utilizing artificial heat?

(46) What would the maximum percentage of liquid allowable in container at 60°F. with product having specific gravity .508 if water weighs 8.328 lbs. per gallon and product 4.24 lbs. per gallon?

(47) What three methods are

used in transferring liquid from one container to another?

(48) Where may fuel supply containers be gaged and filled?

(49) May gas or liquid be vented to the atmosphere to assist in transferring contents of one container to another?

(50) What must a service manual contain? To whom must it be supplied?

(51) What are the requirements of electrical connections in cylinder filling stations?

### Next Month: Part 3

## M. L. Arnold Elected President of CNGA

The membership of the California Natural Gasoline Association has elected M. L. Arnold, Richfield Oil Corp., Los Angeles, president for the ensuing year, beginning July 1.



GEO. L. TYLER

again selected as secretary-treasurer of the Association.

A new member of the directorate elected this year is R. C. Enderly, Wilmington Gasoline Co., Los Angeles, whose three-year term will expire June 30, 1947. There are 45 members on the board of directors.

The new chairman of the Taft, Calif., chapter is E. C. Spencer, Norwalk Co.

## Converting Shoe Factory Steamers

**Y**OU will find that there are two general types of electric bed-laster and pull-over steamers which you will be called upon to convert.

The more common type is what might be termed a contact type heater which is illustrated in Schematic Drawing No. 1. In this, the electric element is bolted to the exterior of the bottom of the steamer casting.

This type of electric steamer is very inefficient because of poor heat transference and heat losses. Its only advantages are that it can be cheaply constructed and quickly repaired by the replacement of the heating element. As steamers are usually given or loaned to the shoe manufacturer by his supplier of shoe findings, the donor is only interested in low first cost, and does not care about the operating cost.

The second type of steamer is the immersion type, in which a water-proof electric heating element is immersed in the water in the bottom of the steamer. This is illus-

● Last month Mr. Turner took you on a tour through a modern shoe factory. He presented important background information to familiarize a salesman with facts he should know when seeking to convert electrical equipment to B-P Gas.

In the accompanying chapter actual conversions are described and schematic drawings presented to illustrate the necessary steps.—Editor.

trated by Schematic Drawing No. 2. It is more efficient than the contact type of heater, but is more costly and difficult to repair. You will encounter but very few of these.

A modification of both types may be found in the inserted tube steamer, which is illustrated by Schematic Drawings Nos. 3 and 4. This will be found in two different types. Caution: don't try to get your conversion burner up into the arched area which is illustrated in Drawing 3, or you will get into trouble with the disposition of combustion gases.

With any of these heaters your first job is to remove the electric heating elements. Some of these you will find embedded in a substance which resembles plaster of Paris, and you may have to chisel this away. Be sure that you remove this entirely, even if you have to use a steel brush and emery cloth.

The next task is to provide for venting the burned gases from the

---

**By C. C. TURNER**

Special Representative

Butane-Propane News



**WARPLANES** take off at ground temperatures as high as 120°—zoom to 30,000 feet and 40° below zero. If the oil in the engine is not kept at the right temperature the engine may soon burn out—and fail.

How could oil temperature be automatically controlled despite outside temperature fluctuations of 160° and more—and tremendous air pressure? To meet this need, Robertshaw designed, engineered and now manufactures a special

control called an Actuator. This precision instrument is made up of 500 parts—many machined to tolerances of .0001"—and all designed for mass production and assembly.

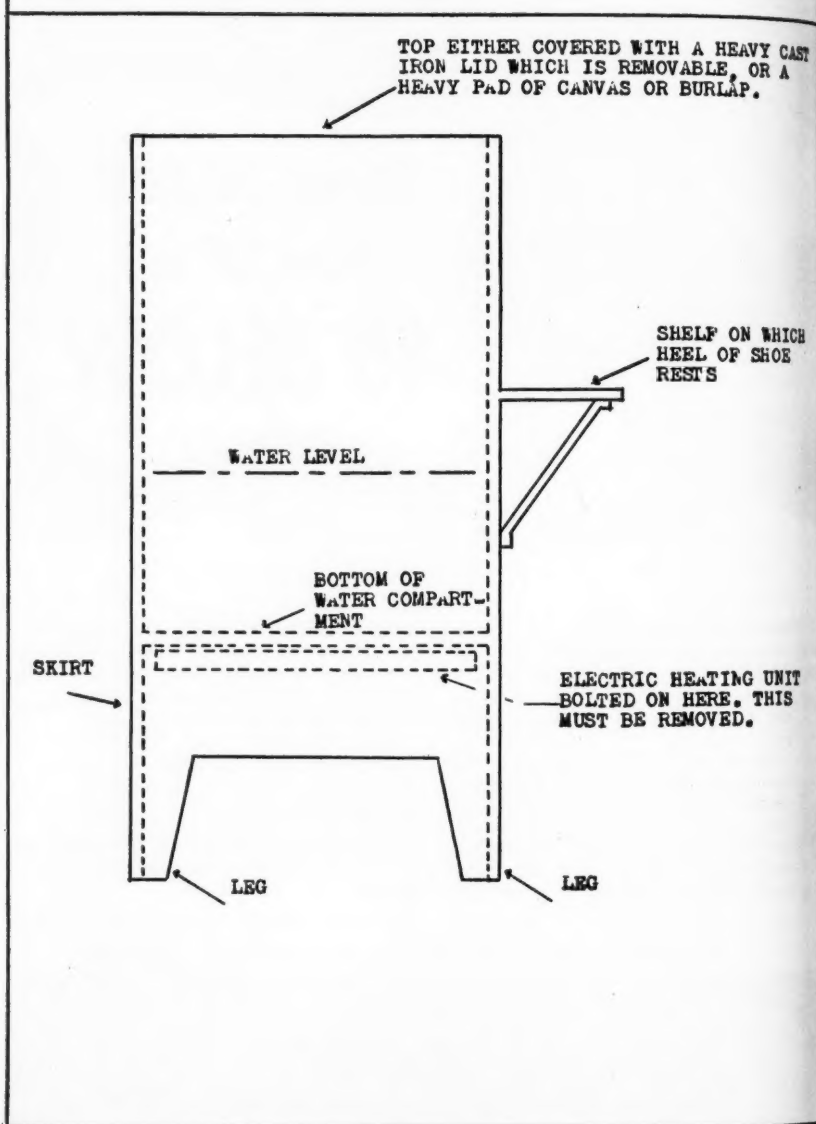
Our expanded force, precision trained; enlarged facilities; new research skills and manufacturing techniques mean that Robertshaw thermostats will more than ever be the mark of quality and dependable service.

Even more than before **YOU CAN DEPEND ON**

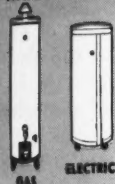
**Robertshaw**  
THERMOSTAT COMPANY • Youngwood, Pa.



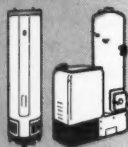
SCHEMATIC DRAWING NO. 1.  
CONTACT TYPE ELECTRIC SHOE STEAMER, WITH ELECTRIC HEATING UNIT  
BOLTED TO THE EXTERIOR OF THE POUNT BOTTOM.



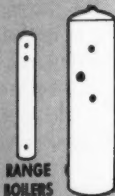
# AUTOMATIC WATER HEATERS



GAS ELECTRIC



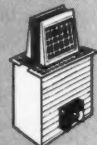
OIL COAL



RANGE  
BOILERS TANKS



CONSOLE  
SPACE HEATERS



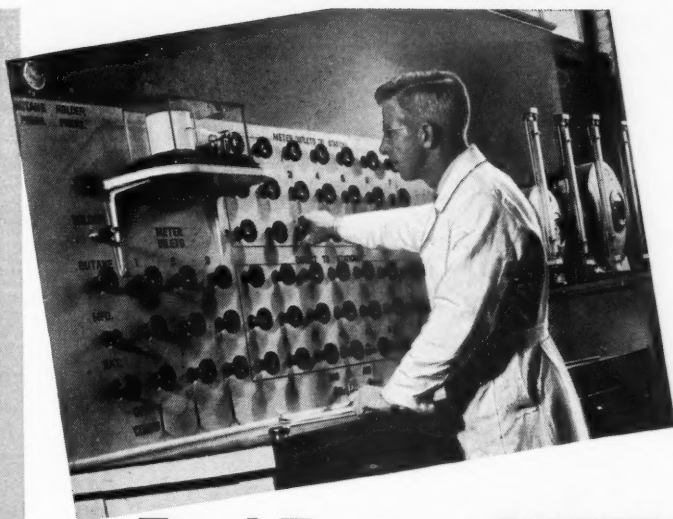
DUAL REGISTER  
FLOOR FURNACES



WALL HEATERS



COAL STOKERS



## Final Exam at RHEEM

AT THE RHEEM LABORATORY in Pasadena, experts keep one eye on today, the other eye on the future.

Here the Rheem Laboratory Group makes spot tests of every part of every appliance in the Rheem line. Pictured above is a step in this "final exam."

Accelerated tests are made to determine how equipment will perform after years of normal service. Other tests with the finest, most sensitive instruments show the way to greater safety and efficiency.

That's the eye on today — keeping a rigid control on Rheem quality.

The eye on the future is Rheem research—the constant search by experts for *greater safety, increased economy and higher quality.*

In your plans for the future ...  
include Rheem

**RHEEM**  
**MANUFACTURING**  
**COMPANY**

Executive and General Sales Offices  
New York • San Francisco • Los Angeles  
Chicago • Washington, D. C.



burner which you are to install. This may be accomplished by drilling a row of holes flush with the exterior of the bottom of the steamer in the skirt, as illustrated in Schematic Drawing No. 5. A better way is to take the steamer to a machine shop and have a continuous slot milled out in the skirts on each long side as illustrated in the drawing. At the same time you can have two holes of 1-1/3 in. diameter drilled in the two short skirt sides. The locations of these two holes, which are for the bar burner which you are going to install, will be later described.

### What To Do First

Now, you are right at the point of constructing the bar burner, and I suggest that you use only 3/4 in., extra heavy, black, steel pipe for this. First measure the inside length which will be available for port holes. From this length deduct 2 in., for it is not desirable to have a port hole any closer than 1 in. to the casting skirt on each end of the burner. For an example, let us say that the inside length is 12 1/2 in.; then you will have 12 1/2 less 2 = 10 1/2 in. available for port holes.

At this point it might be well for you to review Chapters 12 and 13 in the Bottled Gas Manual,\* for the burner which is to be built must conform with established principles for satisfactory burner design.

You are now ready to cut the length of pipe which you will need for the burner. This length is computed as follows:

The inside length available between the short skirts, plus the thickness of the short skirt at one end, plus the thickness of the short skirt at the other end, plus 1 1/4 in., plus 6 times the internal diameter of the pipe, or 6.3 in., minus 1 in. (this being the distance of the last port hole from the inside of the skirt), minus the thickness of the skirt at the end where the mixing tube and mixer are to be placed.

After having cut the pipe, be sure to ream it so that the cross section area will not be reduced at the end which is to be used for the mixing tube. As a precaution in case that you should happen to become confused in constructing the burner and use the wrong end of the pipe for the mixing tube, it is best to ream both ends.

### Details of Operation

Next, thread the mixing tube end of the pipe the customary distance for a common pipe joint, which is a full die. The opposite end of the pipe should be threaded back to within 1/2 in. of the point where the port holes are to start on the end opposite the mixing tube and mixer.

You are now ready to drill the port holes, and for your convenience Table No. 1 has been computed. Other combinations of port sizes, spacing, and number of port holes are possible if they are figured correctly, but use of the table will save you this trouble and assure good results.

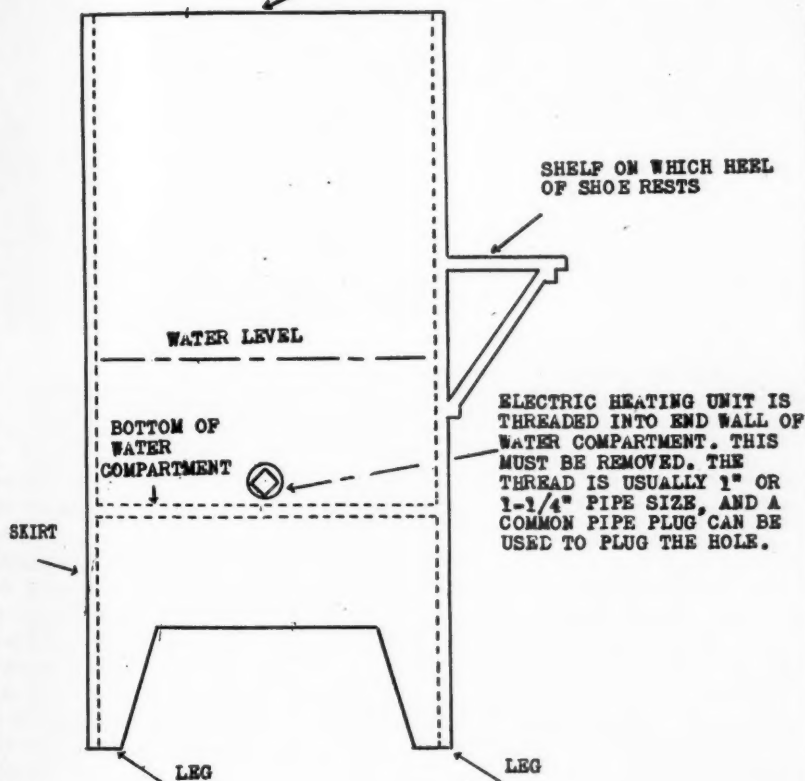
Let us assume a length of burner which can be drilled for ports of 11 in. Following the 11-in. line across you will find that 2 rows of No. 36 MTD sized ports are necessary.

\* Published by BUTANE-PROPANE News.



**SCHEMATIC DRAWING NO. 2.**  
**IMMERSION TYPE ELECTRIC SHOE STEAMER WITH ELECTRIC UNIT THREADED**  
**INTO END WALL OF WATER COMPARTMENT.**

TOP IS EITHER COVERED WITH A HEAVY  
 CAST IRON LID WHICH IS REMOVABLE, OR  
 A HEAVY PAD OF CANVAS OR BURLAP.



**Table 1. Suggested Specifications for  $\frac{3}{4}$ -in. Pipe Burners to Be Used in Connection with Bedlaster and Pull-over Steamers.**  
*Spud Sizes From No. 66 Down to No. 70 MTD.*

If the Length in Inches of Burner Which May Be Drilled for Port Holes Is	Then the Number of Rows of Port Holes Can Be	And the Size of the Port Holes Will Be (Mtd)	With the Port Holes Spaced on Centers	And the Number of Port Holes in Each Row Will Be	Making a Total Number of Port Holes
9	2	40	$\frac{5}{16}$ inch	28	56
9 $\frac{1}{2}$	2	36	$\frac{3}{8}$ "	25	50
10	2	36	$\frac{3}{8}$ "	27	54
10 $\frac{1}{2}$	2	36	$\frac{3}{8}$ "	28	56
11	2	36	$\frac{3}{8}$ "	29	58
11 $\frac{1}{2}$	2	36	$\frac{3}{8}$ "	31	62
12	2	36	$\frac{3}{8}$ "	32	64
12 $\frac{1}{2}$	2	36	$\frac{3}{8}$ "	33	66
13	2	36	$\frac{3}{8}$ "	34	68
13 $\frac{1}{2}$	1	50	$\frac{3}{16}$ "	72	72*
14	1	50	$\frac{3}{16}$ "	75	75*
14 $\frac{1}{2}$	1	32	$\frac{3}{8}$ "	44	44*
15	1	44	$\frac{1}{4}$ "	60	60*
15 $\frac{1}{2}$	1	44	$\frac{1}{4}$ "	62	62
16	1	44	$\frac{1}{4}$ "	64	64

\* Slightly overloaded with a No. 66 MTD orifice, but will work satisfactorily.

with 29 port holes in each row spaced  $\frac{3}{8}$  in. on centers.

The rows of port holes may be drilled at an angle of  $90^\circ$  to each other. A drill press is desirable for this purpose although you can do the job satisfactorily with a  $\frac{1}{4}$  in. electric drill if you are careful to maintain the correct angle. Lay out carefully the lines for the rows, striking a lengthwise line for them, then lay the ports out on this line with a pair of dividers. Prick punch each hole before you attempt to drill it.

Now let us return to the steamer casting in which you must drill two  $1\frac{1}{8}$  in. holes. The centers of these holes should be 1-5/16 in. below the outside bottom surface of the

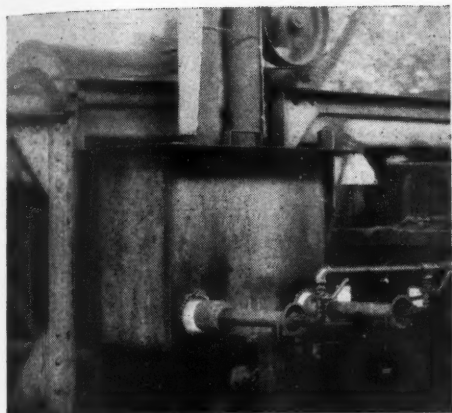
steamer. This places the burner ports  $\frac{3}{4}$  in. to  $\frac{7}{8}$  in. below the steamer.

You are now ready to assemble burner into the steamer. (Fig. 6.)

Thread the long threaded end of the burner through the  $1\frac{1}{8}$  in. hole in the skirt which is to be nearest to the mixing chamber. At this point, and before putting the end of the burner through the other  $1\frac{1}{8}$  in. hole, thread onto long threaded end a  $\frac{3}{4}$ -in. electrician's lock nut, screwing it on until the surface of the nut is 1 in. away from the first port hole. Put the end of the burner through the other  $1\frac{1}{8}$  in. hole until this lock nut is flush up against the inside of the skirt. Thread another lock nut onto the

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Left, Ransome Model B-4 Butane-Propane Burners firing immersion tubes in a food processing vat.

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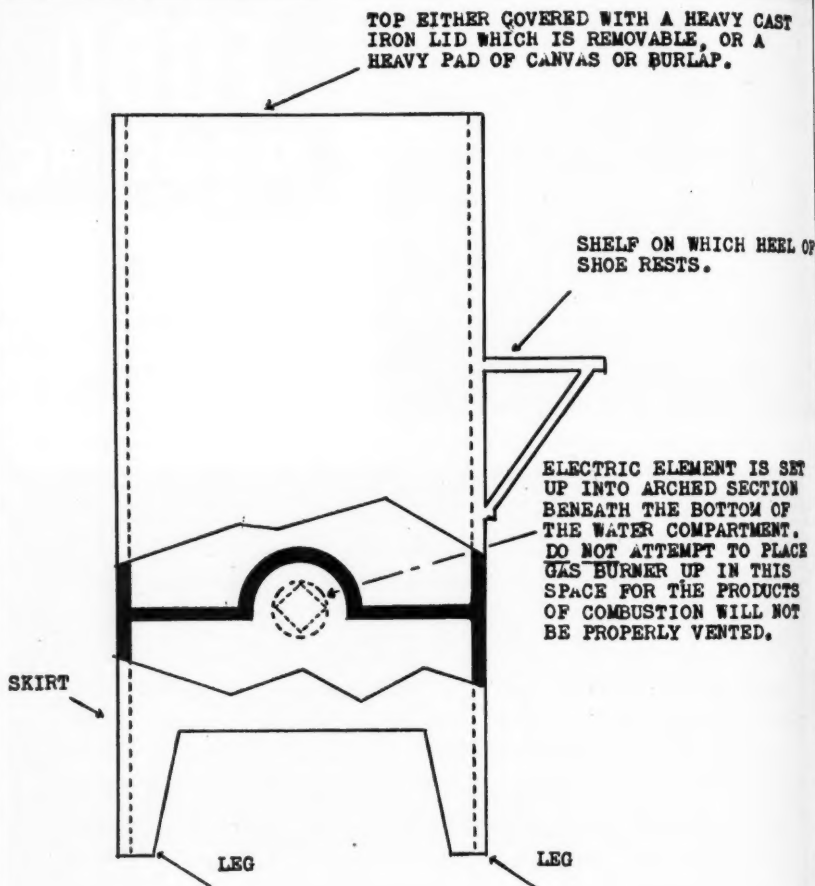
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**SCHEMATIC DRAWING NO. 3.**  
**CUT-AWAY SECTION SHOWS HOW AN ELECTRIC HEATING UNIT IS IN SOME INSTANCES SET UP INTO THE BOTTOM OF A SHOE STEAMER.**



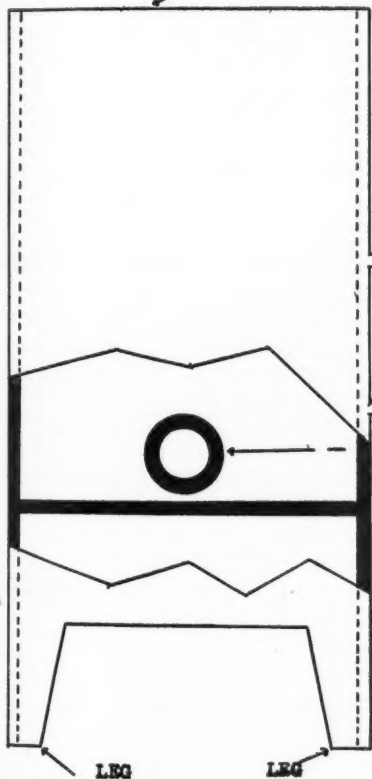
**SCHEMATIC DRAWING NO. 4.**

CUT-AWAY SECTION SHOWS HOW ELECTRIC HEATING UNIT IS IN SOME CASES PUT INTO A TUBE WHICH PASSES THROUGH THE WATER COMPARTMENT OF A SHOE STEAMER.

TOP IS EITHER COVERED WITH A HEAVY CAST IRON LID WHICH IS REMOVABLE, OR A HEAVY PAD OF CANVAS OR BURLAP.

SHELF ON WHICH HEEL OF SHOE RESTS.

ELECTRIC ELEMENT IS INSERTED IN A TUBE WHICH IS CAST INTEGRAL WITH THE BODY OF THE STEAMER AND PASSES THROUGH THE WATER COMPARTMENT. WHILE IT IS NOT NECESSARY TO REMOVE THE ELECTRIC ELEMENT IT IS BEST TO DO SO. DO NOT PLUG THE ENDS OF THE TUBE AS THE PRESENCE OF MOISTURE IN THE ENCLOSED SPACE MIGHT DEVELOP SUFFICIENT PRESSURE UNDER HEAT TO RUPTURE THE STEAMER WITH POSSIBLE SERIOUS RESULTS. DO NOT ATTEMPT TO PUT THE GAS BURNER IN THE TUBE UNLESS THE BURNER IS OF THE PRE-MIX TYPE. THE INITIAL COST OF SUCH AN INSTALLATION WOULD BE GREATER THAN THAT OF PLACING A BAR TYPE ATMOSPHERIC BURNER BENEATH THE WATER COMPARTMENT.



long threaded end of the burner, tightening it until it locks the burner into position.

Next, tighten a  $\frac{3}{4}$ -in. pipe cap onto the long threaded end of the burner, using some good luting compound which is suitable for liquefied gases.

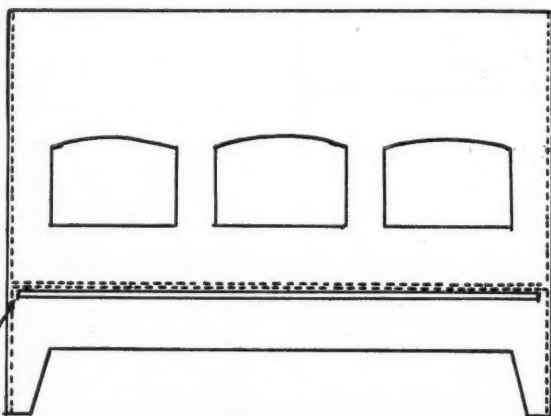
The next step is to screw the mixing chamber onto the other end of the burner. After this a spud must be tapped into the end of a  $\frac{1}{8}$ -in. gas cock. It will probably be necessary to trim off the corners of the spud in order that the male threads on the exterior of the gas cock may be in the clear.

The orifice in the spud should be a No. 66 MTD size, or smaller. The end of the gas cock with the spud inserted in it is screwed into the mixing chamber. After the burner is positioned so that the burner ports are properly directed toward the bottom of the steamer, the assembly is ready for installation and adjustment.

You have probably wondered about the psychology of starting out with a No. 66 spud and then using a smaller one. The success of your installation lies in satisfying the operators. Here is a new fuel which they can control by turning a

#### SCHEMATIC DRAWING NO. 5

SHOWS HOW BOTH LONG SIDES OF A SHOE STEAMER MUST BE SLOTTED OR DRILLED IN ORDER TO ALLOW THE PRODUCTS OF COMBUSTION TO ESCAPE



THERE MUST BE A ROW OF  $\frac{5}{16}$ " OR  $\frac{3}{8}$ " HOLES DRILLED ON BOTH LONG SIDES OF THE STEAMER EXACTLY FLUSH WITH THE LOWER SIDE OF THE BOTTOM OF THE WATER COMPARTMENT. THESE HOLES MUST BE VERY CLOSE TO EACH OTHER IN ORDER TO ALLOW FREE VENTILATION. A CONTINUOUS SLOT IS PREFERABLE.



ple gas cock so that any desired amount of heat can be obtained. One thing that will impress the operators is that the units have plenty of speed and "whallop." After two or three days of use, inspect the job, and you will find that the operators are running their steamers with the gas cock partially closed.

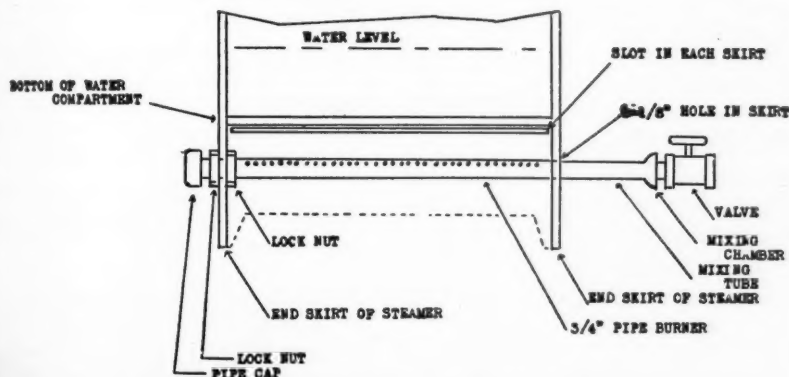
You can then go to the factory owner and tell him that you have discovered that his operators are so good that you can save him considerable money by cutting down the orifice sizes. It will only take a few minutes to do this, and the cost of it will be nothing in comparison to the good will that you can thus create. I have learned from experience that it is better to

convert a factory in this way than to cut the burners down to the bone in the first place.

The first impression of the operators is likely to be the lasting one. Some pull-over steamers can be cut down to a No. 68 orifice with an input of about 6957 Btu per hour, and some bedlaster steamers can be cut to a No. 70 spud with an input of 5627 Btu per hour. This depends upon three factors—the design of the steamer, the efficiency of the operator, and how well you have made the conversion.

You will find that most steamers are placed on rickety make-shift stands near the machines. Be sure that these stands are well reinforced or replaced, and that your conversion units are fastened se-

SCHEMATIC DRAWING NO. 6.  
SHOWING HOW A CONVERSION GAS BURNER IS ASSEMBLED INTO A SHOE STEAMER.



CAUTION:- DO NOT FASTEN BURNER SOLIDLY TO STEAMER AT BOTH ENDS BECAUSE OF EXPANSION AND CONTRACTION.

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curely to them. One-inch corner brackets are excellent for fastening the units to the stands.

Drill the steamer legs and bolt corner irons to at least two of them with 3/16-in. stove bolts. Bolt the corner irons to the stands in the same manner. Use flared fittings only, for there is considerable vibration in a shoe factory. Fasten all tubing into position with pipe clips of the proper size, and don't be afraid to use plenty of them!

I have mentioned flaming torches, and there are several torches on the market which are suitable in-so-far as the burner head is concerned, but none of them have the proper type of control valve. The nearest approach to this is a push button valve with a by-pass adjustment for either a minimum flame, or pilot light during inoperative periods.

There are two troubles with such valves. The first one is that a push button valve which is operated by one person several hundred times a day soon makes the operator's finger sore. This can be overcome by rigging a handle onto the torch so that the valve is operated by compressing the hand instead of pressing the valve with a finger.

The second trouble with such valves is that they are all of the simple poppet type with a packing gland around the stem. This packing gland cannot be too tight for the valve will not then operate. If it is too loose there will be a leak and the operator's hand may be burned by the ignition of the escaping gas.

What is really needed is a small diaphragm valve which opens

against the force of a compression spring and is operated by compression of the hand. There is a demand for many hundreds of such torches, and it is not confined to the shoe manufacturers.

The torch will require about 8 ft. of flexible tubing, and this should be securely clamped to the torch and to the hose nipple.

A simple, inexpensive and rugged assembly for the hose take-off from the supply line may be constructed with a 3/8-in. drop ell, a 3/8-in. close nipple, and a gas cock having a 3/8-in. female thread at one end and a hose nipple cast integral with the valve body at the other end. The drop ell is fastened to the wall with screws, and connection to the gas supply line is made with a 3/8-in. male pipe x 3/8-in. flare fitting.

A fire-proof metal housing must be constructed in which the torch may be hung during inoperative periods, this for the reason that the pilot light, or by-pass flame, may be in operation at such times. This should also be constructed in such a manner that it is impossible for the operator to hang the torch hose over the housing or in any manner that it might come in contact with the pilot or by-pass flame.

I have also mentioned the use of liquefied fuel gases on edging machines. It would be difficult to describe one of these machines in a limited space, but the oscillating knife which does the edging comes in contact with a tiny flame on each stroke. The gas consumption on these machines is very small, but if you are going to make a 100% con-

version you must connect to them. A small Barber jet burner makes an excellent burner head for this purpose.

Back in the beginning of these chapters on shoe factories I told you that I would later have something to say about their financial set-up and relation to the United Shoe Machinery Corp.

When automatic shoe machinery was first invented, it was very expensive, and the shoe manufacturers would not purchase it. As a result, the manufacturers of automatic shoe machinery hit upon the plan of leasing it to the shoe manufacturers on a royalty basis.

Because of this system, the shoe manufacturers own precious little of the machinery in their factories and the United Shoe Machinery Corp. literally controls the manufacture of shoes in the United States. This condition has made it possible for some parties to enter the shoe manufacturing business on "shoe-string" capital, and there have been instances where some such operators of questionable ethics have literally moved out of town over night, leaving the local merchants and their employees holding worthless checks and uncollectible bills. This lack of financial responsibility does not apply to the entire shoe industry or to the well known reputable manufacturers, but it is well to watch credits carefully in your dealings with new or unknown manufacturers.

There are many other applications of B-P Gases in the shoe and leather industries.

For instance, there is the manufacture of suede leather. This is done by a special machine which is fundamentally nothing more than a carrier belt which moves specially processed hides over a long bar burner of the ribbon flame type at a uniform rate of speed. Every part of the flame must be of exactly the same intensity or the leather will come out streaked and worthless. To accomplish this, every corrugation in the inserted ribbon must be exactly the same, and I have spent a whole day on one of these burners in procuring this condition by carefully bending the corrugations with a pair of thin-nosed pliers.

A careless operator can undo a whole day's work by allowing something to rub against the corrugations in the burner. Such burners are usually 60 in. or more in length and they operate on a gas pressure of up to 10 lbs., or on pre-mix gas. Better get an engineer who understands the job when you run up against one of these applications, but go after the business, for a suede machine will consume 20 lbs., or more, of liquefied fuel gas a day!

So much for the shoe business. We have really only hit the high spots. You may not have a shoe factory in your town today, but the manufacturers are moving from the east into the middle west and the far west, where they are nearer their sources of supply. Some day an enterprising shoe factory may open up in your town. Then you can dig out this chapter and after a nice, big, gas load.

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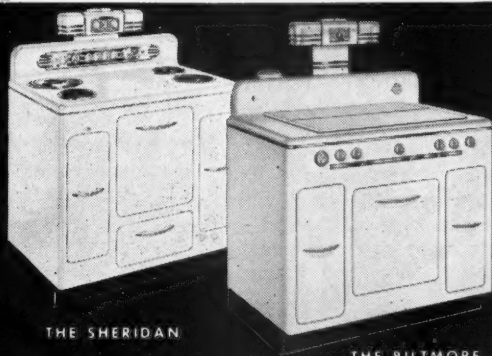
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# CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

**Physical Properties of Butanes and Butenes**—R. C. Wackher, C. B. Linn and A. V. Grosse. "Industrial and Engineering Chemistry," May, 1945, pp. 464-468. The literature data on physical properties of n-butane, isobutane, 1-butene, cis-2-butene, trans-2-butene, and isobutylene are briefly surveyed. The data have been redetermined where discrepancies occur, and, when absent, have been measured. These properties include refractive indices, liquid densities, boiling points, vapor pressures, and melting points. Refractive indices, from  $-10^{\circ}$  to  $-50^{\circ}$  C., on pure samples of these  $C_4$  hydrocarbons are presented. Measured also are the liquid densities, from 0 to  $-70^{\circ}$  C., of cis- and trans-2-butene. New data on liquid densities below  $0^{\circ}$  C. are presented for isobutane, isobutylene, and 1-butene. The vapor pressures from 20 to 800 mm. have been measured on n- and isobutane, and are presented as substantiating evidence of the latest literature data.

**Using the Velocity Head Concept in Pressure Drop Calculations**—C. E. Lapple. Heating, Piping and Air Conditioning, May, 1945, pp. 262-267. Part 2. Design of pipe lines, process equipment, ventilation systems, etc., requires estimation of pressure drops in order to specify the required pump, compressor, fan, or blower capacities.

Pressure drop estimates are often necessary, too, in the operation of equipment for purposes of locating possible plugged or corroded lines, checking process performance, or determining bottlenecks for proposed capacity increases. This article is intended as a guide to a physical conception or visualization of otherwise seemingly complex fluid flow phenomena. The approximations presented will be found to be entirely accurate for many purposes, and an attempt has been made to point out their limits of accuracy.

**Greater Light-Ends Recovery Is Design Trend in Natural Gasoline Plant Construction**—V. V. Jacomini. "National Petroleum News," May 2, 1945, pp. R-323-325. The increasing call for liquefied petroleum gases to meet war needs and the necessity of conserving natural resources by pressure maintenance projects has had considerable effect on the design of natural gasoline plants. In this article, the author discusses changes in design and engineering features of natural gasoline and cycling plants brought about by the war and forecasts the future trend in plant construction.

**Some Considerations of Postwar Petroleum Refinery Operations**—E. B. Smoley and V. O. Bowles. "Petroleum Engineer," May, 1945, pp. 13, etc. Refiners in all categories are faced with the problem of economical manufacture of postwar petroleum products.

**Outlook for the Refiner After the War**—A. J. McIntosh. "Petroleum Engineer," May, 1945, pp. 146, 147.



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150. Needs for refined oil products will be changed in the postwar world. In this article the author tells what the industry may expect.

**Factors Causing Lubricating Oil Deterioration in Engines**—R. E. Burk, E. C. Hughes, W. E. Scovill and J. D. Bartleson. "Industrial and Engineering Chemistry," Anal. Ed., May, 1945, pp. 302-309. The deterioration of lubricating oil in internal combustion engines is due largely to oxidation reactions. It is shown that these reactions are primarily catalytic at the engine temperatures in question, the catalysts being metals and metal compounds such as iron, copper, lead, and their compounds. The effects of other possible catalytic materials, such as blow-by gas components, are considered.

**What Is "Good" Gasoline?**—D. V. Stroop, A.P.I. Quarterly, April, 1945, pp. 15, etc. The super-fuels that power the nation's mighty bombers are no accidents; neither is the high quality anti-knock gasoline that now sends the Army's land vehicles across enemy country and that will power private automobiles after the war. They are the results of years of extensive research, much of it conducted jointly by the automotive and petroleum industries. A bibliography of 88 references is appended.

**100-Octane Gasoline**—C. H. Vivian. "Compressed Air Magazine," May, 1945, pp. 130-141. A non-technical discussion of the production of 100-octane aviation gasoline. Brief descriptions and flow sheets of the Fluid Catalytic and the T.C.C. cracking processes are given.

**New Developments Spotlight the Gas-Diesel**—L. N. Rowley. "Power," May, 1945, pp. 64-70. Dual-fuel engines compress gas-air mixture to

high level for diesel efficiency; controls permit fuel shift while unit running under load, or operation on combination of gas and oil. This article gives the history, explanation of working cycle and design details of commercial units.

**Low-Pressure Carbon Dioxide Provides Protection Against Refinery Fire Hazards**—H. R. Harper, "Oil and Gas Journal," April 28, 1945, pp. 12, etc. Carbon dioxide is stored under relatively low (300 p.s.i.) pressure at a convenient point for fire protection of refinery equipment or units. This article shows by diagram, photographs, and discussion how the various items of fire-fighting equipment should be arranged to provide the maximum protection for personnel and refinery units. The illustrations show typical units which must be protected, and how an over-all system may be designed to handle all hazards by partial or complete flooding, direct application, by hose reel, or by other means.

**Fuels for High-Speed Diesel Engines**—V. A. Kalichevsky, "Petroleum Refiner," April, 1945, pp. 89-94. Author discusses: Ignition quality; physico-chemical properties; diesel index; load conditions; addition agents; viscosity and distillation range; dewaxing; fuel economy.

**Production of Synthetic Liquid Fuel from Natural Gas**—V. I. Komarevsky. "Petroleum Refiner," May, 1945, pp. 96-98. The synthesis of hydrocarbons from carbon monoxide and hydrogen mixtures (the Fischer-Tropsch process) is discussed.

**Care and Maintenance of Heat Exchangers**—"Oil Weekly," May 7, 1945, pp. 39, 40, 42. Installation, operation, maintenance, cleaning, and corrosion are discussed in this article.

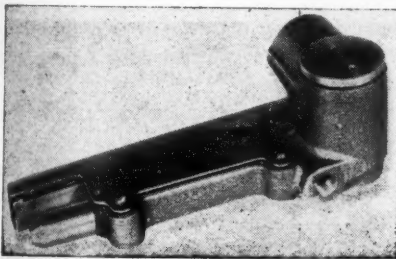
# New Products

## Range Pilot

The Bryant Heater Co., of Cleveland, Ohio, announces a new automatic gas range pilot designed specifically for more positive performance, longer life and freedom from field service, and plans to adapt this model or a modification of it for use with liquefied petroleum gases.

The unit can be used with single-point flash ignition, electrical ignition and with constant pilot flames. It is simple in design and is made entirely of stainless steel with the exception of the cast iron body. It can be installed entirely within the burner compartment, having been designed to withstand the high ambient temperatures found in ovens and broilers.

The pilot employs a new type of thermal element which has been under development at Bryant for several years. This element is a one-piece



stainless steel stamping which functions very rapidly and consistently when actuated by the pilot flame. It is of the compensated type; i.e., the hot and cold sides of the element, being of the same piece, are therefore of identical material and consequently the operation of the element is entire-

ly independent of ambient temperature. In tests it has shown remarkable consistency in retaining its original adjustment.

The new Bryant pilot emphasizes a minimum number of working parts, minimum loading of the thermal element, highest quality material and rugged construction to insure positive performance and long life.

## Converter

Century Gas Equipment Co., 11188 Long Beach Blvd., Lynwood, Calif., has a new Model K Century Converter, designed for engines up to



500 plus, horsepower. It is for use where multiple conversion units have been required to supply fuel for large horsepower engines.

The unit weighs 15½ lbs. Its large heat exchange area will take care of in excess of 50 gals. of propane per hour. The guide-type valves are made for volume flow of fuel and all working parts are easily accessible from the front of the converter, using only a screw driver.

Size of the unit is 9 in. in diameter and approximately 6 in. in depth.

This unit maintains a positive pres-

# SYMBOL OF EXPERIENCED GAS ENGINEERING

**W**HEN you contract for Phillips Butane or Propane you get a great deal more than a product of highest purity, made to rigid specifications. Probably the most important "extra" is EXPERIENCED GAS ENGINEERING COUNSEL . . . the certainty that your plant facilities, tank trucks and customer equipment, will be properly engineered and that through the years your entire operation will be expertly checked for safety and maximum



efficiency. There are several other important "extras" . . . all reasons why you will find it to your advantage to contact our nearest district office and ask a Phillips representative to explain our plan for increasing your profits.

## PHILLIPS PETROLEUM COMPANY

Philgas Division

BARTLESVILLE, OKLAHOMA

Branch Offices in NEW YORK, CHICAGO, PHILADELPHIA, MILWAUKEE,  
DETROIT, ST. LOUIS, SHREVEPORT, AMARILLO, HIBBING, DENVER

THE WORLD'S LARGEST MARKETER OF LIQUEFIED PETROLEUM GAS

sure to the lockoff and is adjustable for pressure up to 4 oz. in the low pressure. It maintains extremely close regulation of pressures and 50 lbs. differential in incoming pressure shows no measurable change on the low pressure.

## Wall Heater

The "Panelray" is a radiant heating unit made by Day & Night Manufacturing Co., of Monrovia, Calif., and comes in single units of 27,600, 18,400 and 10,000 Btu's, and dual units of 36,800, 27,600 and 20,000 Btu's. Overall dimensions run from 13-3/16 in. to 21-3/16 in. in width by 59-3/4 in. high. The streamlined models project only 1 1/2 in. from the wall.

When dual units are installed to serve adjoining rooms, the same vent is used and considerable installation labor is saved. Each individual "Panelray" in dual installations is regulated separately and independently of the

other. If desired, one small and one large one can be combined in a single unit where a large room adjoins a small one.

Complete venting prevents the formation of moisture vapor on windows and room surfaces. The "Panelray" fits any wall, old or new, between standard, 4-in. studs; stands entirely above the floor and does not require tearing up or cutting of floors or rugs. No underpinnings or substructures are necessary. It is simple to operate, light, and clean. All "Panelrays" are built for thermostatic controls, which may be included at time of installation or later.

An important factor in operating economy is the patented "heat trap" flue which baffles the upward sweep of heat, holding it and deflecting it outward into the room, keeping fuel consumption low and providing maximum heat for home-owners. It is equipped with a burner specially designed for use with B-P Gases.

A

The panel water heater at left of picture is a new product of the Day & Night Manufacturing Co., Monrovia, Calif.

V



## Policies Stated For Limited Priorities

Policies in accordance with which limited priorities assistance (preference ratings and allotments) may be granted for civilian production materials in the United States and Canada during the third and fourth quarter of 1945 are set forth in a regulation issued by the War Production Board.

The new regulation is Priorities Regulation No. 28. It also lists a number of special instances in which individual aid may be granted certain manufacturers.

## Demurrage Charges Eased But Penalties May Return

Because a few additional tankers have been placed in the coastwise

petroleum service, thus relieving somewhat the critical shortage of tank cars, the Interstate Commerce Commission on June 15 suspended temporarily existing heavy penalties on holding loaded tank cars at destination points.

The action was announced by the Office of Defense Transportation, which recommended that the step be taken. The new order (Amendment 6, ICC Service Order No. 263 Revised) returns tank car demurrage to the basis in effect prior to Jan. 22, 1945.

The provisions of the amendment should not be construed as a signal to shippers and railroads to relax in their efforts to speed up the unloading and return of tank cars. Should it be found necessary to reinstate the penalty provision of the order, ICC will do so.



**For Bulk Stations, Tank Trucks, and above and below ground systems.**

- ★ **LP-GAS CYLINDER VALVES** are listed as Standard and for re-examination service by Underwriters' Laboratories, Inc.
- ★ **GLOBE, LINE AND ANGLE VALVES** — Diaphragm Packless and Wing Cap — in Flare sizes from  $\frac{1}{4}$ " to  $\frac{3}{8}$ " O.D.; Sweat sizes from  $\frac{1}{4}$ " to  $2\frac{1}{2}$ " O.D.; F.P.T. sizes from  $\frac{1}{2}$ " to 2".
- ★ **SIGHT GLASSES**, suitable for any normal LP-Gas pressure. Entire top assembly removable while soldering lines to body.
- ★ **FLARE FITTINGS**, including Unions, Couplings, Adapters, Elbows, Tees and Nuts — listed as Standard by Underwriters' Laboratories, Inc.

**SUPERIOR**  
**VALVE & FITTINGS COMPANY**  
**PITTSBURGH 26, PENNSYLVANIA**



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Illustration from Bryant national advertisement

## THINGS ARE COMING YOUR WAY!

Many pleasant surprises are due when the lid of wartime restrictions is lifted and you gaze upon the Bryant Heater postwar line—for, here at your command, will be *the most complete line of gas heating equipment in the nation!*

From the Bryant Heater laboratories where the first gas home heating equipment was designed, will come new improvements, "new idea" products to help you make sales in every type of home;

Soon, the Bryant Heater distributor in your territory will be ready to tell you the complete story of this unusual postwar dealer opportunity. It will be worth your while to let him explain how *things are coming your way!* The Bryant Heater Company, Cleveland 10, Ohio . . . One of the Dresser Industries.

bryant  
GAS  
HEATING



LET THE PUP BE FURNACE MAN

AUGUST — 1945

# THE TRADE

James H. Judge, Chicago district manager of the Neptune Meter Co., since 1932, has been promoted to the post of assistant general sales manager. When Mr. Judge assumed his new position on July 1, he had behind him 22 years of sales experience with the Neptune Meter Co.

H. A. Tolburg, of Springfield, Ill., who has been with the company since 1936, covering the State of Illinois, has been promoted to Chicago district manager.

First shipyard in the east to engage in building for the Allied Navies, the Wilmington, Del., plant of American Car and Foundry Co. has been notified by Admiral C. C. Bloch, USN, that a fifth renewal of the Army-Navy "E" award has been granted to men and women of the ACF shipyard.

Charles T. Miller has been appointed manager of appliances sales, Bal-

timore district of Rheem Manufacturing Co., it is announced by Frank J. Nugent, general manager of appliances sales.

Mr. Miller will make his headquarters at 1401 Standard Oil Bldg., Baltimore, and will be in charge of sales in the territory comprising the District of Columbia, Delaware, Maryland, Virginia, West Virginia, North Carolina and the northern portion of South Carolina. He will report to the Eastern Division Manager, W. W. Stevens in New York.

Caloric Gas Stove Works has named George J. Ellis as divisional sales manager for the Pacific coast. The announcement was made by Julius Klein, Caloric's general sales director.

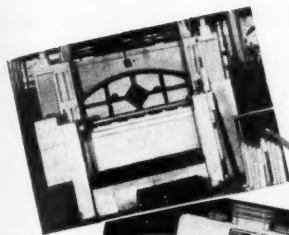
Prior to his transfer from Philadelphia, effective June 1, Mr. Ellis had been Eastern divisional sales manager since June, 1941. For three years previously he had been Caloric's repre-



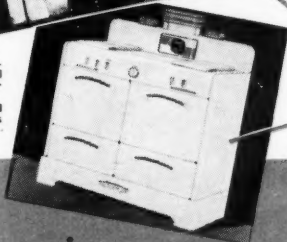
Production of Major Chef gas ranges is being resumed at American Stove Co. St. Louis and Harvey, Ill., plants. Viewing ranges coming off the production line are the company's sales executives.

*For Every need in*

- ★ PRODUCTION
- ★ TRANSPORTATION
- ★ STORAGE
- ★ INDUSTRIAL
- ★ OR HOME USE



ABOVE: One of the new normalizing furnaces installed for a large tank builder—using propane for fuel.  
RIGHT: Propane is the fuel used for cooking on this ultra-modern stove.

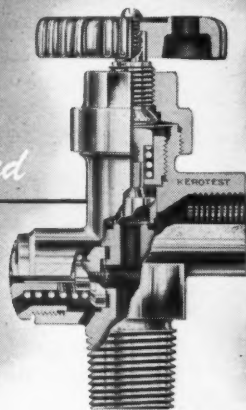


# Kerotest

*Builds safe Precision-Controlled*

## PROPANE-BUTANE VALVES

**FITTINGS—ACCESSORIES**



Even the most critical engineer can readily understand the *built-in* safety features found exclusively in Kerotest LP Valves, by careful study of this cut-away view. For maximum dependability under any difficult operation—specify KEROTEST Butane—Propane VALVES.

*Descriptive Technical  
Information on  
Request*

**LET KEROTEST SERVE  
YOU IN 1945 . . .**

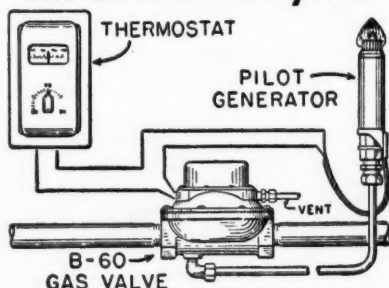
**KEROTEST MANUFACTURING COMPANY**  
PITTSBURGH, PA.



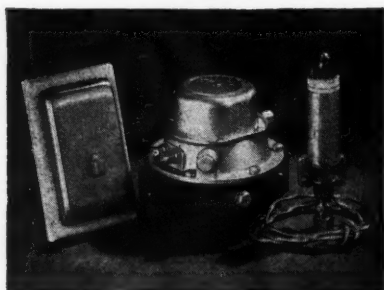
# All Gas Operated HEATING CONTROLS for Homes and Industry

## B-60

### All Gas Control System



### B-60 Package Set



A completely self-contained and self-operating system, consisting of a T-80 Series Trimtherm Thermostat, a B-60 Gas Valve and a Pilot Generator. No outside current is needed.

Request Catalog 52B and the new B-60 Service and Instruction Manual FI-101.

**GENERAL CONTROLS**  
801 ALLEN AVENUE GLENDALE 1, CALIF.

FACTORY BRANCHES: Atlanta, Boston, Chicago, Kansas City, Dallas, Denver, Detroit, Houston, Philadelphia, New York, Cleveland, San Francisco, Pittsburgh, Seattle. Distributors in Principal Cities.

sentative in southern California area.

Caloric's Pacific coast headquarters will be located in the Western Furniture Mart, San Francisco. Mr. Ellis succeeds the late Gustave Adams.

Charles C. Wilson, former Michigan representative for the Tappan Stove Co., has been appointed North



C. C. WILSON

Central division manager, it has been announced by Keith B. Miller, general sales manager. The appointment was effective July 1.

Mr. Wilson will supervise the activities of Tappan representatives operating in the states of Michigan, Wisconsin, Minnesota, North and South Dakota and in the city of Chicago. His headquarters eventually will be in Chicago.

Starting with the Tappan firm in the sales office in 1929, Wilson later travelled the Virginia-Carolina area for six years before being transferred to Michigan in 1936.

Smith Meter Co. announces a new location for its Eastern office at 37-40 30th St., Long Island City 1, New York.

The company has established a that address complete facilities for sales, service, engineering and warehousing.

V. C. Kneese has been appointed manager of the Dallas factory branch of General Controls Co., Glendale, Calif.

As manager of the Dallas branch Mr. Kneese will devote his entire time

**You Can Always**



**LOOK TO BUTLER**

**LIQUEFIED**

**for**

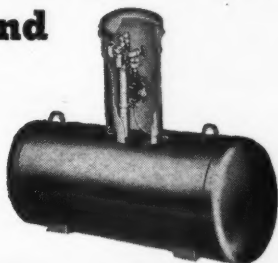


**PERFECT PERFORMANCE**

**PETROLEUM**

**and**

**GREATER SAFETY**



**GAS EQUIPMENT**

**BUTLER BUILT**

**LIQUEFIED PETROLEUM GAS  
HOME SYSTEMS, TRUCK AND TRAILER TRANSPORT TANKS**

**BUTLER MANUFACTURING COMPANY • 7410 EAST 13TH ST., KANSAS CITY 3, MISSOURI**

**AUGUST — 1945**

to serving users of automatic controls in the heating, refrigeration, aircraft and industrial fields throughout the northern half of Texas, Oklahoma and Arkansas.

The Bryant Heater Co. has undertaken to aid gas companies, distributors and dealers in selecting unusually competent postwar gas heating salesmen by engaging the personnel research institute of Western Reserve University to prepare special selection procedures.

The "sales talent indicator test," is the plan standardized upon and is for gas heating salesmen in particular.

Although not an infallible hiring guide, the S.T.I. plan is based on five major analyses of the applicant's capabilities. Check studies have shown that 82% of salesmen thus chosen will be above the average of men em-

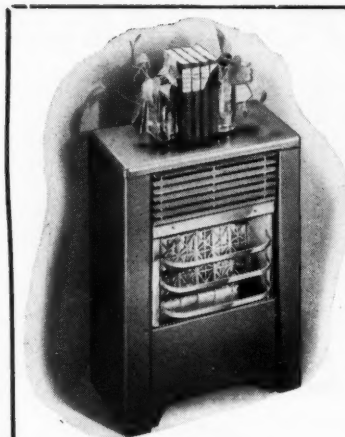
ployed through methods now commonly used.

At a recent meeting of the board of directors of Scaife Co., Archie Murray, executive vice president, was elected president, succeeding J. Verner Scaife, Jr., who has resigned to devote more of his time to other interests. He retains his directorship in the company. Mr. Scaife has just returned to civilian life after three years' service with the United States Navy.



A. V. MURRAY

Other officers re-elected are: A. Scaife, finance vice president; R. C.



#### FEATURES THAT SELL

A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer—Safer heaters, yet priced unbelievably LOW. Write for literature.

## DEARBORN

### WORLD'S FINEST... SAFEST L.P.G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.



BUT.	NAT.
PRO.	MFG.
MIX.	GAS.

### FAMOUS HI-CROWN BURNER

#### BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

## DEARBORN STOVE CO.

3256 Milwaukee Ave.  
CHICAGO, ILL.

3625 S. Grand Ave.  
LOS ANGELES, CALIF.



Taylor, secretary; J. T. Stuart, treasurer and assistant secretary. R. E. Cecil continues as sales vice president; E. S. Sedlachek, sales manager; and J. M. Hopkins, superintendent.

Directors re-elected are: J. M. Magee; A. V. Murray; J. H. Ricketson, III; A. M. Scaife; J. V. Scaife, Jr.; Mary Magee Scaife; R. G. Taylor.



J. E. GESNER

Oakland, in the gas department, Mr.

J. E. Gesner has recently rejoined the staff of **Reliance Regulator Corp.** as engineer. He was formerly associated with this company in 1929-30.

Starting with the East Bay Division of Pacific Gas & Electric,

Gesner advanced to the Colgate Division as measurement inspector, eventually occupying the post of industrial gas engineer of the general sales department, San Francisco.

## Two CMP Regulations Revoked by WPB

Because they will become obsolete with the complete "open-ending" of the Controlled Materials Plan, two directions to CMP regulations were revoked, effective July 1, 1945, by the War Production Board.

The revoked directions are Direction 44 (Steel not needed by producers or distributors to fill authorized controlled material orders) to CMP Regulation 1, and Direction 5 (Disposal of controlled materials procured by a warehouse or distributor for his stock from idle and excess inventories) to CMP Regulation 4.



## LARGE CAPACITY

*in a*

## SMALL SPACE

*with attractive*

## APPEARANCE

Will be found in a 5000 gal. sphere as shown in use by the Hemet Fuel Supply Company and built by the

## Superior Tank & Construction Co.

6155 South Eastern Ave.

Phone AN 4157

Los Angeles, California

## When Production Can Exceed Schedule, Explained by WPB

A producer who has received a rating on Form WPB-2613 may produce in excess of his authorized production schedule in cases where he obtains all the material that he requires for the products that are produced in excess of schedule without use of preference ratings, or where the material was obtained for another purpose and can no longer be used for that purpose, the War Production Board stated July 13. The rules explaining when material obtained with priorities assistance for one purpose may be used for another are outlined in Section 944.11 of Priorities Regulation 1.

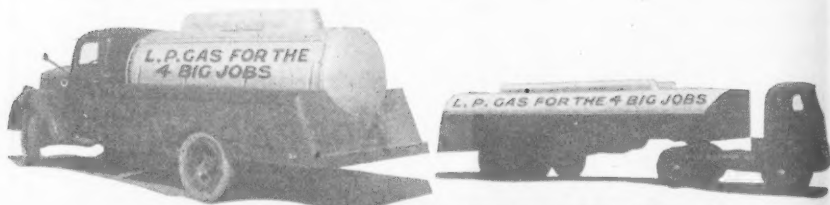
The ruling was made in an amendment to PR-11B, governing preference ratings for manufacturers not

obtaining production material under the Controlled Materials Plan.

PR-11B also was amended to conform with the MM rating provisions of PR-29, covering the revised WPB priorities system. It now provides that a manufacturer of unclassified products who has received a rating on Form WPB-2613 may extend a rating of MM for delivery after Dec. 31, 1945, provided that no orders carrying AA ratings assigned to the authorized production schedule are outstanding for 1946 deliveries.

If any such orders are outstanding, the AA ratings must be canceled before extending the customer's MM rating. MM ratings are assigned to military agencies and will be assigned in turn by them to orders and contracts placed during and after the transition period of the priorities system (July 1-Dec. 31, 1945).

**"DON'T FENCE ME IN"  
CRIES YOUR GAS CUSTOMER  
"BUY THAT TRUCK OR TRANSPORT TANK  
NOW—PRONTO—QUICK—ON THE DOUBLE"**



**L-253 HAS BEEN REVOKED ELIMINATING WPB 2317  
CLEARING THE WAY FOR YOUR PURCHASE  
IF YOU ANTICIPATE PURCHASING A TRUCK  
TANK OR TRANSPORT TANK IN 1945—CONTACT**

**DELTA TANK MANUFACTURING CO.**  
BATON ROUGE, LOUISIANA

# POWER

## 22 Butane Trucks Haul Fuel 8 Years

By PAUL LADY

LIQUEFIED PETROLEUM GAS is today recognized by everyone acquainted with it as a superior type of motor fuel, capable of producing power at greatly reduced costs and adding markedly to the life of the engine.

In coming months BUTANE-PROPANE *News* will present "Case Histories" of truck fleets that have been operating on butane or propane. It will be the desire of the publishers to present facts and figures helpful to those wanting to learn more about this modern motor fuel. Questions or suggestions from the readers will be appreciated and will help in the presentation of this series.—Editor.

### Case History No. 2

**COMPANY:** California Butane Co., 2900 Santa Fe Ave., Los Angeles. Distributors of liquefied petroleum gas.

**FLEET HISTORY:** Today this company has 23 trucks in operation, 22 of which are operating on butane; one uses diesel for fuel. The first installation of butane carburetion equipment was made in 1937 on a BG Mack. It is still in service, hauling better than 125,000 gals. each month.

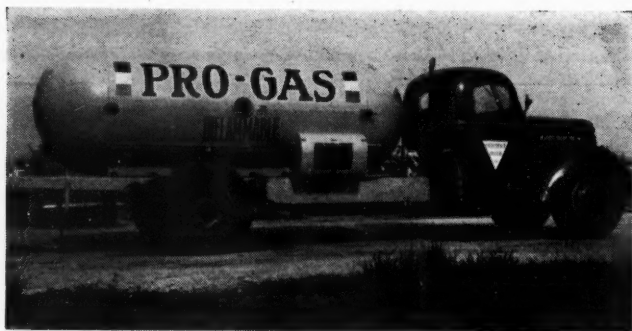
This fleet of trucks is used exclusively for the transportation of butane and propane from refinery to bulk storage plants operated by the company in southern California. The smaller tank trucks are used for delivery of fuel to consumers. Small flatracks deliver appliances and equipment.

The operation of equipment on

butane has been entirely satisfactory, according to company officials in charge of the fleet. Maintenance costs have been very low and downtime for repair has been negligible. Plans now call for conversion of the diesel to butane operation as soon as a general overhaul is needed.

**EQUIPMENT:** 23 trucks, ranging from 95 hp. on the Fords to 240 hp. on the Hall-Scott. Fleet includes: 1 BG Mack tanker, 2500 gals.; 5 GMC tankers, 1600 gals.; 3 Ford tankers, 1500 gals.; 2 White tankers, 1600 gals.; 1 Autocar (Hall-Scott engine) tanker, 6500 gals. with truck and trailer; 1 Cummins diesel tanker, 6500 gals. with truck and trailer; 6 GMC and Fords, light service trucks; 3 GMC and Fords, flatracks used for pickup and delivery.

**CARBURETION EQUIPMENT:** All butane operated trucks are equipped with Ensign carburetion equipment. By establishing uniformity in the type of equipment used, the company has simplified replacement and repair problems. Units are interchangeable, making it easier to teach repair men, and less expensive in stocking parts. On the light trucks the Ensign Model R—for engines up to 150 hp.—is in



GMC with 1600-gal. propane tank used for delivery of butane and propane to rural customers. The company operates five of this type trucks; all operate on butane; each averages 35,000 miles annually. Maintenance costs are at a minimum.

use. The heavy duty trucks are equipped with Ensign 700 Series for engines up to 250 hp.

**CONVERSION FACTS:** For the average conversion it takes two men one day to change from gasoline to butane operation. The cost varies from \$200 to \$250, depending on the size of tanks and other equipment used. On the large units, two 80-gal. tanks are installed; on the smaller trucks, one 40 gal. tank.

Tackometers are used on all trucks. Drivers are instructed to use them continuously. This practice helps to prevent lugging of motors. This is most important as the absence of ping, when butane is used for fuel, makes it difficult to determine when a motor is lugging unless such equipment is used.

An important conversion practice adhered to by this company is that of cooling intake manifolds on butane-converted trucks. This is extremely important for top performance. This is true because with the cold butane or propane gas, more expansion is realized when fired. Many butane equipped trucks have given poor performance because no

thought was given to a cool manifold.

It is this company's practice to block off entirely the hot air passage between exhaust and intake manifolds.

In the case of the Hall-Scott, this is especially easy as the intake and exhaust manifolds are located on opposite sides of the engine, making it most adaptable to use with butane. On other engines it is quite simple for a good mechanic to figure out a practical method to block off the hot air passage.

On trucks of the California Butane Co., the compression ratio usually is not changed. The ratios on the various trucks in operation by this company run around  $6\frac{1}{2}$  to 1.

**FUEL CONSUMPTION:** Comparisons with established figures for gasoline operation show that butane does not give better mileage. In fact, it is acknowledged that gasoline has a slight superiority on mileage obtained. This company's figures show that the Hall-Scott averages  $3\frac{1}{2}$  miles to the gal. carrying a 70,000-lb. gross vehicle weight. The GMC trucks average

6 to 7 miles per gal.; the Fords 7 miles per gal.

**POWER:** Checks show a definite increase in power on all trucks. This is a fact agreed upon by drivers, most of whom have had many years' experience operating many types of equipment on the various fuels. Butane gives faster pick-up, more power on grades, and cuts operating time on long hauls.

**OIL:** It is the policy of this company to change oil every 5000 miles. The filter is also changed at this mileage. On the light units, 20-weight oil is used; on the heavy duty trucks, 30-weight.

If these same trucks were operating on gasoline, it would be necessary to change oil every 1000 miles. In the case of the diesel, the oil must be changed every 1000 miles

—at which time it is found to be in very poor condition for efficient operation. The oil taken from the butane trucks is quite clean and from all outward appearances is still in good condition.

**OPERATING FACTS:** After eight years of operating trucks on butane this company has definitely established the fact that maintenance costs are much lower than with other fuels. In the case of the Hall-Scott, the truck went nearly 300,000 miles before a complete overhaul was needed. At that time the cylinder walls were honed and .005 oversize rings used. The mains were ground .010. The conrods were checked but found O.K.

The GMC's average 35,000 a year. They are inspected once each year, which usually ends up with a



Powered by a Model 177 Hall-Scott engine, with a rated hp. of 240, this Autocar daily hauls 6500 gals. of liquefied petroleum gas from refinery to bulk stations of the California Butane Co., scattered throughout Southern California. It has always used butane for power; averages 75,000 miles a year.

valve grind. New rings are needed at the most every second year. The story on the Fords is about the same. A policy which calls for a check of valves and ignition every 5000 miles helps to keep a close record on the fleet; has established the fact that butane operation is more economical, and that downtime for maintenance and repair is much less.

This was proven in the case of the BG Mack—the first truck ever converted by the company. It went 400,000 miles before a new engine was installed. It had only one complete overhaul, at 200,000 miles, during that period. Throughout its operation it transported 125,000 gals. per month with a gross vehicle weight of 33,000 pounds.

The large trucks of the present fleet average 75,000 miles a year; the small trucks average around 35,000 miles.

During the last two years of emergency the trucks have been operating almost continuously. There have been very few breakdowns on the road and practically no downtime for repairs.

The drivers of the fleet are unanimous in their praise of butane for fuel. The driver of the diesel truck says the sooner his truck is converted to run on butane the better he will like it.

The total mileage of all trucks now in operation averages around 500,000 miles per year.

PLANT FACILITIES: The com-



## Gas Cylinder Truck - Easy Handling — Saves Lawns

- ALSO FOR STOVES, BOXES, CRATES
- PNEUMATIC RUBBER TIRES AVAILABLE NOW

An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

Write for prices and folder.



**THOMAS**  
**TRUCK**  
**& CASTER**  
**COMPANY**

800 Mississippi River, Keokuk, Ia



# WEDGEWOOD



*with  
Oven  
Heat  
Control*

*Also Model 5186, as above, available without built-in heater*

## Economy for users of LP GAS

Wedgewood's superior quality since 1882 has meant maximum efficiency with consequent economy. Users of LP GAS may depend on the most for their money with Wedgewood.

MODERNS  
PRÉFÈR



**WEDGEWOOD...Dealers' Choice! GAS**

# WEDGEWOOD THE MODERN GAS RANGE

JAMES GRAHAM MANUFACTURING CO.

LOS ANGELES • SAN FRANCISCO • NEWARK, CALIFORNIA • PORTLAND, OREGON

pany operates large bulk plants at Santa Maria, Castaic, Los Angeles, Santa Ana, Colton and Imperial. They feed these bulk plants from the big truck-and-trailers operating out of the Standard Oil refinery at El Segundo.

The small trucks are used in the distribution of fuel, appliances and equipment to consumers in the areas surrounding the various bulk plants. Facilities for supplying fuel for their own trucks are available at each bulk plant.

## Manpower Statements Waived In Less Critical Labor Areas

Direction 74 to Controlled Materials Plan Regulation 1, issued July 10, provides that the manpower state-

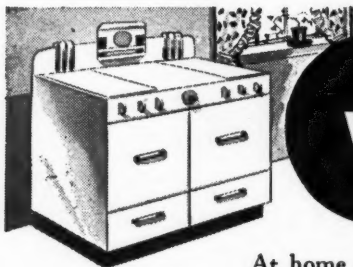
ment will not be necessary when filing an application on Form CMP- (application for allotment of controlled materials) in either of the following two cases:

(1) Where the proposed production will be carried on in plants situated in Groups III, IV or unclassified labor areas.

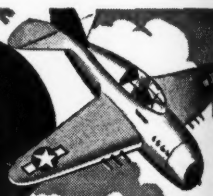
(2) Where, regardless of plant location, the total number of production workers in the plant will not exceed 100 after application is approved without modification.

If either of the two above conditions applies when the application is filed, a statement must be attached to that effect.

Direction 2 to Priorities Regulation 11-B makes a similar provision for producer filing an application on Form WPB-2613.



**IN  
WAR OR  
PEACE**



At home and on the industrial front, a dependable source of Butane and Propane means more satisfied customers. For more than fifty years, through wars and in peace times, Carter has faithfully served. Write us for higher quality Butane and Propane.

*The*

**CARTER**

WHOLESALE ONLY

TULSA, OKLAHOMA

DEHYDRATED

**PROPANE • BUTANE**

*Oil Company*

# Better Distribution BEGINS WITH STORAGE

USE  
**FOWLER BUTANE GAS**

PHONE  
6316

The liquid petroleum gas distributor who has ample storage facilities is in an ideal position to offer his customers better service than his competitor who is handicapped with insufficient storage and is forced to await delivery before he can supply the demands of his trade.

We are equipped to design, fabricate and erect or install cylindrical pressure vessels with hemispherical or ellipsoidal ends, as well as Horton spheres, for the storage of butane and propane. Our Birmingham plant has a stress-relieving furnace, and, when

specifications require it, we are prepared to make "radiographs" of the vessel.

We can build propane and butane storage tanks in accordance with Par. U-68 and Par. U-69 of ASME specifications, as well as to Par. U-201 of ASME code or to API-ASME specification. If you are planning additional storage for better distribution, why not write for estimated costs on the installation or erection of the type of tanks we build. Please state capacity and pressure desired as well as installation site.

## CHICAGO BRIDGE & IRON COMPANY

Birmingham, I. .... 1519 N. Fiftieth St.  
Chicago, 4. .... 2459 McCormick Bldg.  
San Francisco, 11. .... 1289 Battery St. Bldg.  
Cleveland, 15. .... 2271 Guildhall Bldg.  
Houston, 3. .... 1657 Hunt Bldg.



Los Angeles, 14. .... 1468 Wm. Fox Bldg.  
New York 6. .... 3451-165 Broadway Bldg.  
Philadelphia, 3. .... 1655-1700 Walnut St. Bldg.  
Washington, 4. .... 703 Atlantic Bldg.  
Houston, 1. .... 5647 Clinton Drive

Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PENNSYLVANIA

## Georgia Dealers Elect Officers

At a meeting held in Atlanta on July 16, the Georgia Butane Dealers Association elected officers for the ensuing year, according to word received from Hermann Paris, president of Georgia Butane Gas Co., Sandersville, and past president of the Association.

New officers of the Association are W. B. Wight, Consumers Gas Co., Albany, president; R. J. Westbrook, Automatic Gas Co. of Gainesville, vice president. Vice president during 1944, A. Price Aycock has assumed the position of secretary-treasurer for the coming term.

Mr. Paris reported that the meet-

ing held in Atlanta was one of the most enthusiastic to date, with only one member of the Association absent.

## Butane-Propane News Publisher Bulk Plant Directory

The "Bulk Plant Directory" is the name of a publication recently published by Butane-Propane News in response to an industry demand for a listing of liquefied petroleum gas storage facilities in the United States.

The Bulk Plant Directory contains the names of nearly 1300 bulk plants throughout the country. Wherever the information was obtainable, the Directory includes the number of storage tanks of every dealer, the capacities, management and ownership, and locations of the various plants.

The Directory sells for \$12 per copy.

# OUR 60th YEAR OF DEPENDABLE SERVICE

**DESIGNERS and  
FABRICATORS of**

**A COMPLETE "MOSCO" LINE  
OF LP-GAS CONTAINERS**

**MOSHER STEEL CO.**  
**DALLAS                      HOUSTON                      TYLER**

TAKE THE "inside track" TO POST WAR PROFITS



# OVERWHELMING PREFERENCE

## DAY & NIGHT



35 years of consistent radio, space and mail advertising—backed up by honest merchandising policies, forefront engineering and highest quality manufacture—have won widespread acceptance for DAY & NIGHT Water Heaters, America's finest. All models have specially-designed burners for LPG gases, require no adjustment, assure a perfect fuel mixture from the start. Equipped with Unitrol, the 100% safety pilot control; patented "Heat Trap" flue; Thermostat and many exclusive features.

Buyer surveys in state after state show a sweeping preference for DAY & NIGHT. In lush LPG markets of postwar years, this means top sales and profits for dealers of America's finest line of gas-heating equipment. Water heaters... wall heaters... panelrays... cabinet heaters... portable heaters. DAY & NIGHT offers postwar dealerships to qualified concerns serving the Butane-Propane field. Join the DAY & NIGHT parade to an unlimited postwar future. For the facts about a postwar dealership, write to . . .

AMERICA'S FINEST TODAY... GREATEST TOMORROW

## DAY & NIGHT MANUFACTURING CO.

MONROVIA • CALIFORNIA

*One of the Dresser Industries*

# VIKING...

Has The "Know How"  
To Build Good  
ROTARY PUMPS

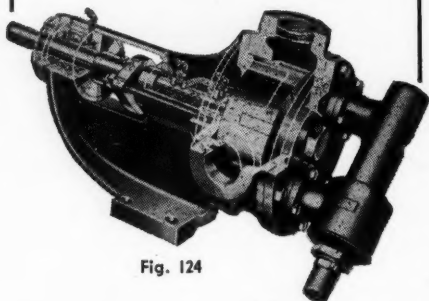


Fig. 124

10-18-35-50-90-200-300 GPM CAPACITIES

The secret of most good rotary pumping jobs is knowing what type, size and style of pump should be used to do a certain specific job . . . then to be able to furnish a pump that is built to do the job specified.

The answer is Viking's wealth of experience in every field which calls for rotary pumps. More Vikings have been installed than any other rotary pump . . . giving this company "know how" leadership in the industry.

The line of Viking Rotary Pumps far exceeds any other. It is the most complete line in the world. Write today for Bulletin Series 2300, which illustrates Viking Pumps widely used in the butane-propane industry.



**VIKING PUMP COMPANY**  
CEDAR FALLS, IOWA

## "Flame Weeding" Offers Market

THE Petroleum Administration for War has made available a limited quantity of propane for continued experimentation in "flame weeding," a new method that scientists have found promising for use in some farm crops. The action was taken in response to numerous requests from farmers and farm organizations.

Because of wartime restrictions on the use of liquefied petroleum gases, only a very small quantity could be released at this time. It will be supplied only to areas close to the source of production and only so long as seasonal demands permit.

"The over-all demand for propane generally falls off during the summer months," Deputy Administrator Ralph K. Davies said. "The propane so released may be employed for other purpose and its use is limited strictly to the crop season."

### Needed for the War

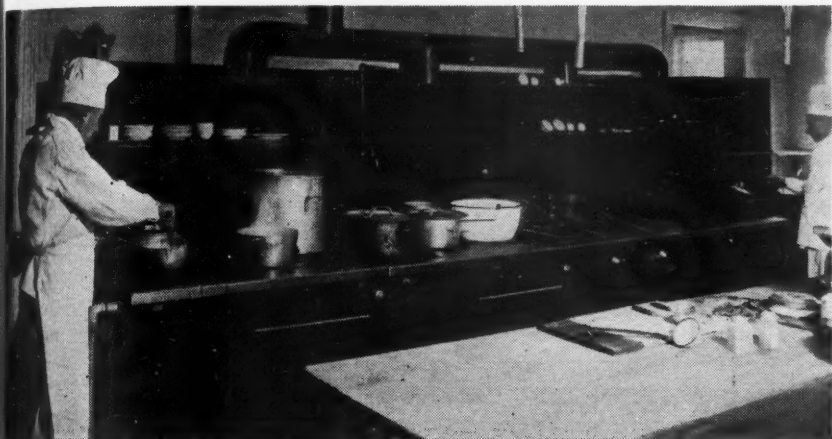
Butane may not be employed for that purpose at this time, PAW explained, because it is an important ingredient of 100-octane gasoline needed for war in the Pacific. Some of the best results with flame weeding have been obtained with cotton and sugar-cane crops, notably in Arkansas, Mississippi and Louisiana.

Flame weeders that will heat-treat two or more rows at a time already are being produced experimentally by one manufacturing concern. It is expected, however, that there will be no wide use of this modern agricultural implement until final victory in the Pacific permits wartime restrictions



# "DOCTOR" TAKES OWN MEDICINE

Ex LPG Sales Manager "Prescribes" VULCAN  
For Hotel He Manages



*Carleton Hotel's Modern LPG VULCAN Installation.*

● When "Clem" Schlauder, formerly a star LPG sales manager, took over the management of the well-known Carleton Hotel at Cape Vincent, N. Y., he promptly took the "medicine" he had "prescribed" for others. He installed modern, heavy-duty VULCAN equipment for LP Gas. With these results: In first regular season after VULCAN installation: "81% increase in business—because

of greater variety of food service . . . Major savings in manpower . . . Sufficient EXTRA business to pay for the new equipment.

What's "good medicine" for the Carleton Hotel can be "good medicine" for your prospects. Write for our complete Catalog; and for information on how we can help you win new sales, build bigger loads for LP Gas.

## STANDARD GAS EQUIPMENT CORP.

Bayard & Hamburg Streets—Baltimore 30, Md.

Branch Offices: New York—Boston—Aurora, Ill.—Chicago—New Orleans—Los Angeles.

on the use of liquefied petroleum gases to be lifted completely.

These restrictions have been made necessary because huge quantities of propane are being used in war plants in the heat treatment of metals and for other special purposes. Butane, in addition to being an important ingredient of 100-octane gasoline, is also needed in the manufacture of synthetic rubber.

### J. H. Graham New PAW Head For Southwestern Area

Appointments of James H. Graham of Tulsa, Okla., as director of the Petroleum Administration for War's Natural Gas and Natural Gasoline Division in the Southwestern area, and Louis I. Mistrot, formerly of Louisiana, as assistant director, were announced July 19 by Deputy Petroleum Administrator Ralph K. Davies.

Mr. Graham had been assistant director of the division since June 1944. In his new post he succeeds Henry Brown, who resigned several months ago to return to private industry. Mr. Mistrot had been senior analyst of the division since June 1944.

### Priorities System Will Be Simplified

Details of a revised and simplified priorities system leading to ultimate discontinuance of priorities assistance for "virtually everything except military requirements" as soon as war supporting and essential civilian production no longer needs general help were announced June 30 by J. A. Krug, Chairman of the War Production Board.

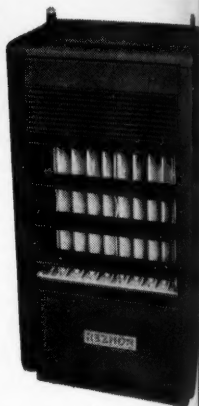
Mr. Krug announced a six month

**When You Want Sound Advice  
on Heating . . .**

**See the REZNOR Man**

In choosing heating equipment, many factors must be taken into consideration. One of the responsibilities of a heating man is to recommend the economical and satisfactory type of system.

All representatives of Reznor Manufacturing Co., makers of Reznor Unit Heaters, are certified heating engineers or have had broad heating experience. They know the answers and they can pass along many sound suggestions.



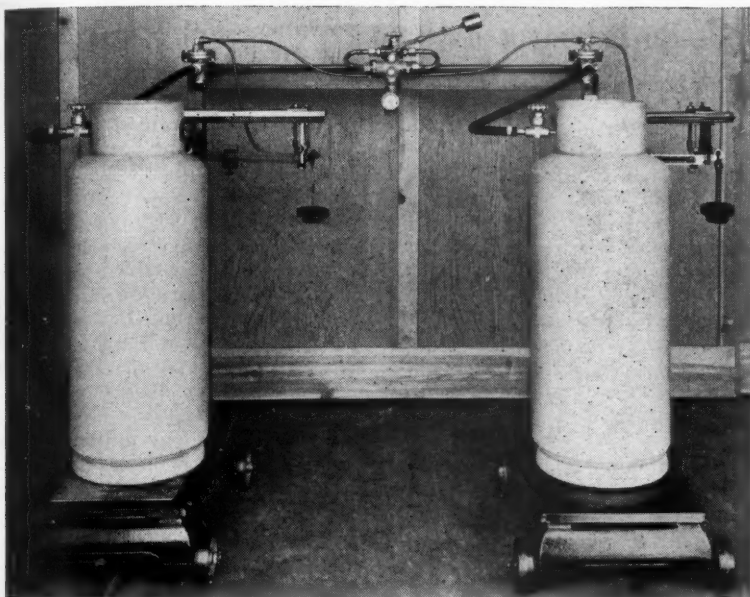
*Write for the name of your nearest representative*

REZNOR  
MANUFACTURING CO.

**REZNOR**

304 JAMES STREET  
MERCER, PENNA.

**"GAS HEATERS EXCLUSIVELY SINCE 1888"**



## Automatic Scale Loading Fills More Cylinders In Less Time

The Roney Domestic Cylinder Charging Manifold is designed to automatically fill cylinders to a pre-determined weight . . . quickly and without loss of vapor. It operates in conjunction with the Roney Vapor Differential Compressor by means of a central control valve. This speeds operations and eliminates the use of high pressure liquid pumps.

### IMPORTANT OPERATING FACTS

Cylinders are alternately evacuated and filled without loss of vapor.

Delicately balanced trip valves, mounted on each scale beam, function to close control valves when cylinders reach pre-determined weight.

Individually air or vapor operated valves,

located at each cylinder connection, control flow of liquid into cylinder.

Cylinders cannot be overfilled and the operator can devote his entire attention to handling and recording cylinders.

Properly installed, the four cylinder manifold will fill four cylinders in from six to eight minutes.

**L.C. RONEY INC.**  
1740-44 W. 59<sup>th</sup> ST. • LOS ANGELES, CALIF.

## LIQUEFIED PETROLEUM GAS

Look forward confidently with  
**CITIES SERVICE** as an experi-  
enced source of LPG.

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**CITIES SERVICE** is expanding  
its production of these products.

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**CITIES SERVICE** is increasing  
its fleet of LPG tank cars.

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**CITIES SERVICE**

means

**GOOD SERVICE**

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**CITIES**  
**SERVICE OIL CO.**  
(Delaware)

Bartlesville, Okla.—Chicago, Ill.

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Other Sales Offices

CLEVELAND  
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TORONTO

transition period from July 1 to Dec. 31, 1945, to "give business an opportunity to adjust its operations to the new system, which will go into effect after Jan. 1, 1946."

Mr. Krug said transition to the revised and simplified priorities system was necessary because "the military services have substantially reduced their supply programs as a result of victory in Europe."

Under the new priorities rating system the present AA rating method and the Controlled Materials Plan will be discontinued at the end of 1945 and replaced by a system in which the AAA rating will still be assigned in emergencies as under existing procedures but a new MM rating will be assigned by military agencies.

WPB itself will assign the MM rating only in cases where it is clearly necessary for the war effort or for requirements of similar urgency.

## Safety Guide for Refineries Issued by PAW

As a safety guide for refinery management and supervisory personnel during the war period, a 175-page manual, "Wartime Recommendations for Refinery Inspections," has been prepared by the facility security division of Petroleum Administration for War.

The manual, which contains 67 pages of charts, diagrams and illustrations in addition to text, is not intended for equipment subject to state or federal Government regulations such as marine equipment, power boilers, or other apparatus specifically defined by PAW. It is simply a compilation of good practice procedures in inspection, and it is not mandatory in any way.

The manual is divided into four sections—Process Equipment, Electrical Equipment, Instruments and Fire Prevention Equipment.

IN 1909  
HALLEY'S COMET BLAZED  
ACROSS THE SKY



## **- and IN 1909 WARD FLOOR FURNACES BLAZED A NEW TRAIL...**

Ward Floor Furnaces were a new idea 36 years ago, when people marveled at the wonder of Halley's comet.

But, unlike Halley's comet, the Ward Floor Furnaces came to stay. Today there are more Wards installed than any other make of similar type heating equipment.

The Ward of tomorrow will be a far cry from that of 1909. The improvements now being planned will make it outstanding in heater equipment.

It will pay you to investigate the Ward today for tomorrow's profitable sales.

### **WARD HEATER COMPANY**

1800 W. Washington Blvd. • Los Angeles 7, Calif.

*36 years of  
"KNOW-HOW"*



# ANSWERS

To Questions  
on NBFU—58 on  
Pages 46-51

- (1) Liquid.
- (2) Gas.
- (3) One-fifth lower limit combustability.
- (4) Listed and tested by Underwriters' Laboratory or listed and tested by some other nationally recognized laboratory.
- (5) Enforcing authority having jurisdiction.
- (6) 100 lbs. at 100° F.
- (7) Would be for 156 lbs. W.P.; the maximum safety valve setting on

ASME tank would be 156 lbs. pressure. On API-ASME tank would be 156 lbs. pressure.

(8) Currently effective ICC specifications in both instances.

(9). Rules or code under which the containers are manufactured.

(10) Shops authorized by the Code Authority in question and at time of manufacture.

(11) System name plate or tag on filler connection in both instances.

(12) +20° F. to +130° F. and 20° F.

(13) If container is equipped with fixed maximum liquid level indicator or when filled by weighing.

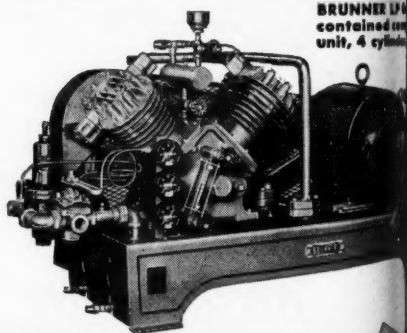
(14) No, for aboveground containers; yes, for underground ones.

## DON'T LOSE VITAL LP GAS VAPOR when unloading tank cars

Many LP Gas operators are losing 500 to 1000 lbs. of liquid petroleum gas because they don't salvage the vapor left in tank cars after unloading. But they are paying for this lost poundage and its transportation! You can salvage this residue vapor by using the Brunner LP Gas Unit. This saving alone will quickly pay for the unit. In addition, the Brunner unit will reduce the time for tank car unloading. The Brunner LP Gas Unit for gas transfer and recovery is outstanding in speed, efficiency, safety and low costs. Brunner Manufacturing Co., Utica, N. Y., U. S. A.



For over 37 years the Symbol of Quality



BRUNNER LP  
contained unit,  
4 cylinders

### WRITE FOR THIS NEW FREE BOOKLET

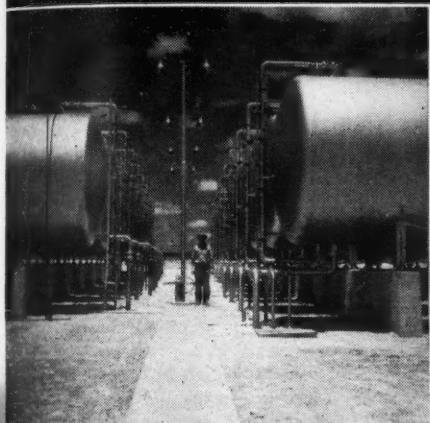
It describes the Brunner LP Gas Unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.





# WARREN

## LIQUEFIED PETROLEUM GAS




**Quality Factors in Warren Facilities**

**WARREN PETROLEUM CORPORATION**

**Tulsa, Oklahoma**

**Houston, Texas**





*Peerless*  
 NOW MANUFACTURES  
**HORIZONTAL**  
 AS WELL AS  
**VERTICAL**  
**PUMPS**

...WITH THE  
 ACQUISITION OF THE  
 DAYTON-DOWD COMPANY  
 BY THE PEERLESS PUMP DIVISION,  
 FOOD MACHINERY CORP.

*Pumps for All Purposes*

*Peerless Pumps*  
**VERTICAL &**  
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**PEERLESS PUMP DIVISION**  
**Food Machinery Corp.**

LOS ANGELES 31, CALIF.  
 301 W. Ave. 26

QUINCY, ILLINOIS \* CANTON 6, OHIO  
 2nd and York St. 1250 Camden Ave., S.W.

(15) Outside of buildings other than those especially provided for this purpose.

(16) 10 feet.

(17) 25 feet.

(18) 10 feet.

(19) Maximum pressure to which they may be subjected.

(20) Resistant to action of liquefied petroleum gas.

(21) As close to container as practicable.

(22) To shut off the flow of gas or liquid in case the flow through the valve exceeds the predetermined setting, which must be less than pipe line capacity to and from such excess flow valve or the pressure on the inlet side exceeds the pressure on the outlet side of valve by certain designated number of pounds.

(23) Inside of container whenever possible, otherwise at point outside of where line enters container.

(24) Safety valves and gaging devices where outward flow of liquid does not exceed that passed by No. 54 drill size.

(25) Wrought iron, steel, brass, copper pipe or approved seamless copper, brass or other approved non-ferrous gas tubing.

(26) 125 lbs. psi.

(27) 3/32" with 3/64" wall thickness.

(28) No.

(29) Where pressures exceed 125 lbs. psi.

(30) Yes.

(31) By use of soapy water and at normal operating pressure.

(32) Wall opening must be repaired until substantially gas tight.

(33) Yes. Run directly as possible, well supported and protected against mechanical injury.

**BUTANE-PROPANE News**

"ECONOMY" — —

— — *The Dealers "Buy Word!"*



Leading dealers choose ECONOMY BUTANE-PROPANE SYSTEMS because they are constructed in strict accordance with A.S.M.E. Code; approved by the Railroad Commission of Texas; inspected by Ocean Accident & Guarantee Corporation, Ltd., and bear the Underwriters label. Write for complete information and prices!



**DALLAS TANK** *Company, Inc.*

201-5 W. Commerce St., P.O. Box 5387  
Dallas, Texas

(34) When discharge line exceeds  $\frac{3}{4}$ " diameter.

(35) Be resistant to action of liquefied petroleum gas.

(36) Five times maximum design pressure of container.

(37) 125 lbs.

(38) Shutoff valve at discharge end and provision made to prevent excessive hydrostatic pressures.

(39) 120% of maximum permitted setting of safety valves on container.

(40) If arrangement is such that full discharge area required is afforded at all times.

(41) Vapor.

(42) 20 lbs. Outside of building.

(43) If less than one quart capacity and not artificially heated.

(44) In separate room from rooms or compartment containing gas or li-

quid pumps, vaporizers or central gas mixing devices.

(45) Indicating compliance with code under which constructed; with working pressure in pounds per square inch; outside surface and inside heat exchange surface; name or symbol of manufacturer.

(46) 82.4% aboveground; 90.5% underground.

(47) Pressure differential; pumping; gravity.

(48) In open air or buildings devoted exclusively to that use.

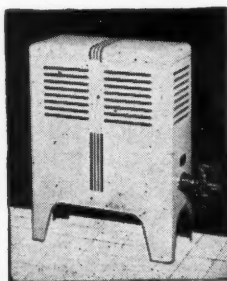
(49) No.

(50) Installation, operation and maintenance instructions, and applied to persons performing above duties.

(51) Be in strict accordance with requirements of National Electrical Code for Class 1, Group D—hazardous locations.

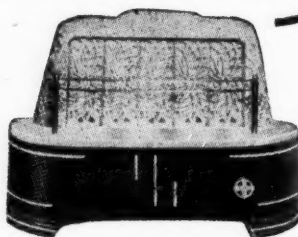
# Armstrong

QUALITY SINCE 1899



No. 10-C Bathroom Heater  
—1-pc. body finished in white porcelain enamel. Cast iron burner, adjustable air mixers. 14 $\frac{1}{2}$ " high.

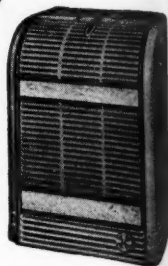
No. 690 Radiant Heater (center) — Finished in brown vitreous enamel. 17 $\frac{3}{4}$ " high. 20,000 or 24,000 B.T.U.



Although our plant is devoted largely to war production, we still make some gas heaters. Deliveries to both old and new customers on a quota basis.

**Armstrong Products Corp.**

DEPT. BP HUNTINGTON, W. VIRGINIA



No. 900 Circulating Radiant Heater — Designed for proper combustion to produce both radiant and circulating heat. Brown porcelain enamel finish. 19" high. 18,000 or 28,000 B.T.U.

# THE BOTTLED GAS MANUAL

A field guide and text  
book for dealers, sales-  
men and servicemen

## 352 Pages of Answers to Every Day Questions About Liquefied Gases, Appliances and Equipment

### *These Are the Chapter Headings*

What Is Propane?  
The Behavior of Gases  
Heat and Temperature  
What Goes On Within a Propane  
Cylinder?  
The Simple Regulator  
Regulator Manifolds  
Regulations—Equipment Selection  
and Installation  
LP-Gas Pipe Lines  
Testing for Leaks and Adjusting Burners  
Fundamentals of Thermostats  
Pilots and Pilot Controls  
Burner Design and Application

Appliance Conversions  
Facts About Water and Water Heaters  
Types of Water Heaters  
Selecting and Installing the Water Heater  
Competitive Fuels—Wood  
Competitive Fuels—Coal  
Competitive Fuels—Oil  
Competitive Fuels—Electricity—  
Rates and Refrigeration  
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The Tools of Our Profession

We pay postage on orders accompanied by check or money order.  
In California add 10c for sales tax. In Canada add 40c for excise tax.

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SPECIAL OFFER  
25% Discount on All  
Orders of 10 or More.

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Gentlemen: Please send me ..... copies of The Bottled Gas  
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Name ..... Position .....

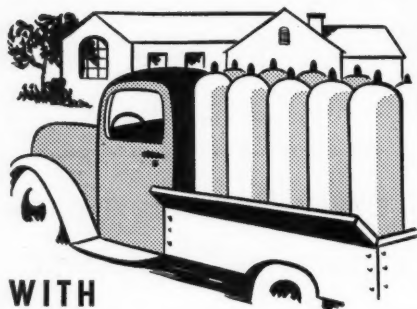
Company .....

Address ..... City and State .....

AUGUST — 1945

117

## CITY CONVENIENCE IN THE COUNTRY



WITH

## SINCLAIR LP-GASES

Living in the country is really worth while when the comforts, conveniences and advantages of city life are available. For the broad areas—BEYOND THE GAS MAINS—for essential work requiring fuel for heating, refrigeration, air-conditioning, power, repair, food processing and the like—Sinclair LP-Gases will solve your customers' problems.

Even in areas served by natural gas, LP-Gases "stand by" in hundreds of America's defense plants—ready to supply fuel enrichment or to TAKE OVER if an emergency occurs.

In spite of heavy demands on LP-Gases for war work, regular industrial and domestic customers are still being supplied.

### SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division

Sinclair Bldg.

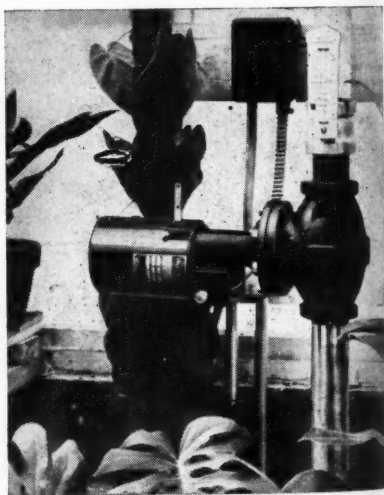
Tulsa, Oklahoma

## Fair Share of Materials and Quotas for "New Comers"

A clarification of War Production Board policy with respect to newcomers to business and industry, including veterans, was issued by WPB as General Program Order No. 517, the agency reported, as a step toward assuring that newcomers will receive a fair share of production materials and production quotas.

The order provides for the establishment or increase of exemptions, for new small users, from restrictions of limitation and materials conservation (L and M) orders, WPB said.

Limitation and materials conservation orders will be loosened for the benefit of small users (including newcomers) as additional quantities of materials become available in the event the additional quantities are not sufficient to warrant complete elimination of controls, WPB said.



Close-up of one of the five General Controls hydromotors which control the circulation of hot water through greenhouses on Warner Bros.' lot.





# Meet Savory

## The Toaster That Boosts Your L.P. Load

When you sell Savory, you sell more than a toaster! When you install a Savory, you emphasize the advantages of gas for commercial cooking and directly insure your L.P. load.

Savory is the ideal toaster for outpost inns, resort hotels, roadside restaurants, and other commercial food service establishments.

Savory will provide fast, convenient toast service for your customers at maximum economy during "peak" or "off-peak" periods . . . and Savory "Appetized" toast is bread at its best. If you're not already a Savory distributor, drop us a line. W.P.B. regulations covering gas toasters have been revoked, and we are prepared to give you reasonably prompt delivery.



Model PD, Gas-Operated  
360 Slices Per Hour

# Savory

EQUIPMENT, Inc.

137 Pacific Street, Newark 5, N. J.

**SOLD BY LEADING DEALERS EVERYWHERE**

## Contract Records to Retain Covered in Regulation No. 19

To prescribe the records that contracting agencies should retain, the Office of Contract Settlement issued Regulation No. 19 on July 14.

This regulation, issued in accordance with Section 18(a) of the Contract Settlement Act, covers records to be retained by the contracting agencies in order to substantiate termination settlements, to facilitate review and to prevent and detect fraud, OCS said. It is of interest primarily to Government contracting agencies.

## Gas Cooking, Heating Stoves Orders Modified or Revoked

All War Production Board orders restricting the production of hard goods were either revoked or subject to the "spot authorization" procedure

as the result of modifications in WPB orders issued on June 28th.

The amended PR-25 differs from the previous "spot authorization" method chiefly in that preference ratings and allotments are no longer given with the spot authorization. Priorities Regulation 27, which provides aid to small business, describes WPB's policy in giving allotments and preference ratings in the third quarter, and tells the manufacturer when he can use an AA-4 rating and a Z-3 "deferred" allotment for use with his spot authorization.

The amended Direction 1 to PR-25 states that until one of the following orders has been specifically amended to provide otherwise, authorizations granted under PR-25 will give relief from those provisions of the order which either prohibit manufacture entirely or restrict the amount of manufacture permitted. (The authoriza-



# LOCK-WING STOP



The design and manufacture of stops and fittings is our specialized business. Working closely with L.P.G. engineers we have developed a complete line of stops and fittings for use with flared tubing. All stops and fittings are furnished complete with couplings, no other fittings or adapters being necessary.

The Lock-wing Stop illustrated is typical of the ingenuity of design characterized in all Hays Products.

Send us your specific requirements. We will give you complete information promptly, without obligation.



## HAYS MANUFACTURING CO., ERIE, PA.

WPB

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d a Z-3  
with his

*Distributors for*

**REGO**  
LP GAS EQUIPMENT

*Hackney*  
BUTANE-PROPANE CYLINDERS

**L.C. RONEY INC.**

**GAS EQUIPMENT CO., INC.**

2620 South Ervay Street, Dallas, Texas

**GAS EQUIPMENT SUPPLY CO.**

*For Safety  
and Economy*

**ETHYL  
MERCAPTAN**

—Purified—

The **ACCEPTED**  
standard  
odorant  
for liquefied  
petroleum  
gases.

**MALLINCKRODT  
CHEMICAL WORKS**

ST. LOUIS

NEW YORK

Keeping you in

**HOT  
WATER**

*Is OUR business*

A. G. A.  
APPROVED



**WATER HEATERS**  
*'THE Quality LINE'*

**IN ALL SIZES AND PRICES**

**UNITED STATES HEATER CO.**

COMPTON, CALIFORNIA

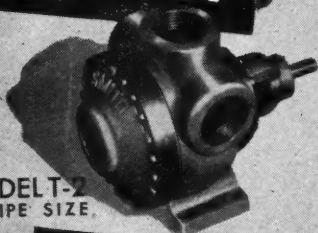
**BUEHLER**

**Tank and Welding Works**

•  
**Manufacturers of Tanks,  
Welded and Pressed  
Steel Products**  
•

5000 Pacific Boulevard  
LOS ANGELES 11, CALIFORNIA

# SMITH



MODEL T-2  
2" PIPE SIZE

## BUTANE-PROPANE PUMPS Capacity 50 GPM

MODEL T-2 is designed for average Tank Truck service. Has capacity of 50 gpm when connected to truck transmission power take-off shaft at 500 rpm.

### SPECIAL FEATURES

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## Precision Products COMPANY

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tion will not, however, in any way relieve the person receiving it from any other restrictions of the order.)

Order L-23-c, Domestic Cooking Appliances and Domestic Heating Stoves, is listed in Direction 1.

## Z-1 and Z-2 Allotments Have Been Cancelled

All allotments of materials for the third and subsequent quarters that are identified by the Controlled Materials Plan allotment symbols Z-1 and Z-2 have been cancelled, effective July 1, the War Production Board has announced.

All preference ratings assigned to production schedules for the third and subsequent quarters that are identified by those symbols applied to or extended to orders calling for delivery after July 1, 1945, also have been cancelled, WPB said. The order was contained in Direction 73 to CMP Regulation No. 1.

Consumers who have received authorized production schedules identified by the symbols Z-1 and Z-2 must, before July 1, 1945, have cancelled any use they have made of these allotments for the delivery of A products or controlled materials in the third and subsequent quarters, and any use of the preference rating for the delivery of other products or materials. Suppliers are also directed to disregard ratings and allotments so identified, WPB said.

Direction 3 to Order M-21-b-1 has been revoked and steel producers and warehouses must, effective July 1, treat all ZW orders as unrated orders.

## Labor Shortage Areas Are Declining Rapidly

The number of Group I labor shortage areas in the country is expected to decline rapidly, the War Manpower Commission stated July 7. The

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## GAS SYSTEMS

Quotations on any type or size pressure vessel to meet your specifications.

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FOR SALE—18,000 GALLON PROPANE Tank ASME 200 Lbs. working pressure, less than one year old, complete with LPG fittings. Address C. E. Miller, 6 N. Michigan Ave., Chicago 2, Ill.

## FREE TO WAR VETERANS

If you are a veteran of World War No. 2, you may run a "Situation Wanted" classified ad in this column three consecutive months without charge.

Send in your copy!

July WMC report on the adequacy of labor supply, measured against demand, showed that of the 302 classified areas in the country, 53 remain in Group I, as compared with 66 a month ago.

Group I areas are those in which acute shortages of labor exist or are anticipated. Changes in the list are normally announced at the beginning of the month, but when conditions warrant, classifications of areas are changed between lists to reflect local labor market situations.

## Award Given to Scaife Co. For Good Safety Record

For humanitarian achievement in saving lives and reducing suffering by preventing accidents, and for patriotic achievement in conserving the nation's sorely limited manpower, Liberty Mutual Insurance Co. recently presented its safety award for "Smashing the 7th Column" to the men and women of Scaife Co., Pittsburgh manufacturer of steel containers for air, gases and water.

For 18 consecutive months this industrial concern has held its accident frequency to 40% below the average for its industry, and from June 22 to September 7, 1944, operated 1,055,877 man-hours without a lost-time accident.

## CNGA Men Discuss Natural Gas Storage

At the August 2 meeting of the California Natural Gasoline Association in Downey, Calif., the subject of underground storage of natural gas was covered in a paper by Raymond W. Todd, Pacific Lighting Corp., entitled, "La Goleta Natural Gas Storage Project."

The second talk was by R. H. Hall and entitled, "1000 Pound Diethylene Glycol Dehydration Plant."



# BRODIE METERS

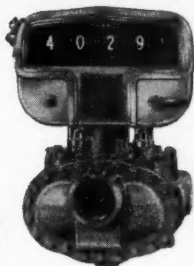
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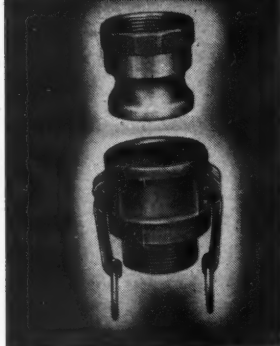
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American Meter Co.....	80	Milwaukee Gas Specialty Co..Third Cover	
American Pipe and Steel Corp.....	127	Mission Water Heater Co.....	92
American Stove Co.....	16	Mosher Steel Co.....	104
Anchor Petroleum Co.....Front Cover			
Armstrong Products Corp.....	116	Neptune Meter Co.....	13
Barber Gas Burner Co., The.....	124	Ohio Foundry & Manufacturing Co., The.....	123
Bastian-Blessing Co., The.....	64, 65	Oxford Co., The.....	125
Blickman, Inc., S.....	—		
Blodgett Co., Inc., The G. S..Fourth Cover		Payne Furnace Co.....	20
Brodie Co., Inc., Ralph N.....	127	Peerless Pump Division.....	114
Brunner Manufacturing Co.....	112	Phillips Petroleum Co.....	82
Bryant Heater Co.....	85	Pitman & Sons Sales Corp., J. C.....	124
Buehler Tank and Welding Works.....	121	Pittsburgh Equitable Meter Co.....	1
Butane Equipment Co., Inc.....	125	Pressed Steel Tank Co.....Second Cover	
Butler Manufacturing Co.....	89		
Carter Oil Co., The.....	102	Radiator Specialty Co.....	—
Century Gas Equipment Co.....	127	Ransome Co., The.....	61
Chicago Bridge & Iron Co.....	103	Reliance Regulator Corp.....	72
Cities Service Oil Co.....	110	Reznor Manufacturing Co.....	108
Coleman Lamp and Stove Co., The.....	—	Rheem Manufacturing Co.....	55
Commercial Shearing & Stamping Co., The.....	124	Robertshaw Thermostat Co.....	53
Cribben & Sexton Co.....	10	Rochester Manufacturing Co., Inc.....	14
		Roney, Inc., L. C.....	109
Dallas Tank Co., Inc.....	115	Roper Corp., Geo. D. (Pumps).....	49
Day & Night Mfg. Co.....	105	Roper Corp., Geo. D. (Ranges).....	77
Dearborn Stove Co.....	90	Rose & Co., Inc., J.....	123
Delta Tank Manufacturing Co.....	94	Round Oak Co.....	—
Dix Manufacturing Co.....	123	Ruud Manufacturing Co.....	—
Downtown Iron Works.....	—		
Dresser Industries, Inc.....	20, 85, 105	Savory Equipment Inc.....	119
Empire Stove Co.....	95	Scalfe Co. ....	4, 5
Ensign Carburetor Co., Ltd.....	96	Schoenberger Co., The W. J.....	79
Estate Stove Co.....	57	Servel, Inc. ....	47
Ever-Tite Coupling Co.....	127	Sinclair Prairie Oil Co.....	118
		Smith Meter Co.....	—
Fisher Governor Co.....	66	Smith Precision Products Co.....	122
Florence Stove Co.....	—	Southern Gas & Equipment Co.....	124
		Sprague Meter Co., The.....	—
Gas Equipment Co., Inc.....	121	Standard Gas Equipment Corp.....	107
Gas Equipment Supply Co.....	121	Standard Oil Co. of California.....	—
General Controls.....	88	Superior Tank & Construction Co.....	98
General Gas Light Co.....	58	Superior Valve & Fittings Co.....	84
Globe American Corp.....	43		
Graham Manufacturing Co., James.....	101	Tappan Stove Co., The.....	—
Grand Home Appliance Co.....	3	Tennessee Enamel Manufacturing Co.....	—
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Harper-Wyman Co.....	6, 7		
Hays Manufacturing Co.....	120	United States Heater Co.....	121
		Viking Pump Co.....	106
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		Warren Petroleum Corp.....	113
Lancaster Iron Works, Inc.....	63	Weatherhead Co., The.....	45
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Liquid Gas Equipment Corp.....	123	Whitehead Metal Products Co.....	—
		Wilcolator Co. ....	50